

APPENDIX A

National Oceanic and Atmospheric Administration Edmonds Tide Charts



9447427 EDMONDS, WA

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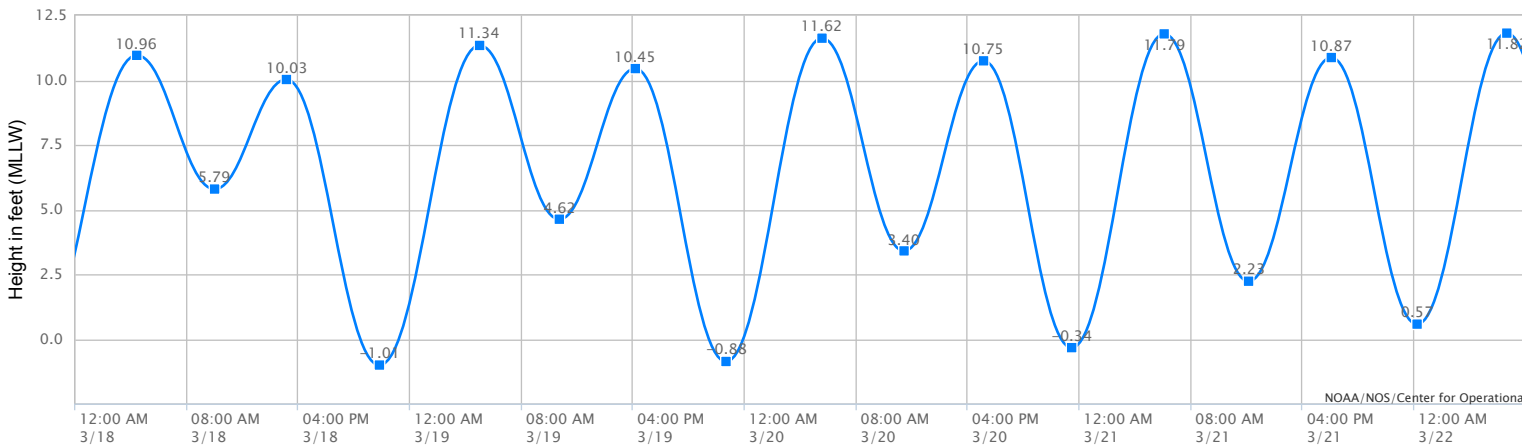
Station Info ▾ **Tides/Water Levels** ▾ Meteorological Obs. Phys. Oceanography

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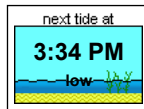
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NOAA/NOS/CO-OPS
Tide Predictions at 9447427, EDMONDS WA
From 2019/03/18 12:00 AM LST/LDT to 2019/03/22 11:59 PM LST/LDT
Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: *0.96 ft. low: *0.99 ft.)



Today's Tides (LST/LDT)



2:20 AM	low	4.00 ft.
8:57 AM	high	11.04 ft.
3:34 PM	low	2.70 ft.
9:49 PM	high	8.21 ft.

Date Day of the Week

Open (LST/LDT)

9447427 EDMONDS, WA

From:

Mar ▾ 18 ▾ 2019

To:

Mar ▾ 22 ▾ 2019

Note: The maximum range is 31 days.

Units

Feet ▾

Timezone

Predicted (ft)

High/Low

LST/LDT ▼

Datum (datum_options.html)

MLLW ▼

12 Hour/24 Hour Clock

12 Hour ▼

Data Interval

High/Low ▼

Shift Dates

Back 1 Day

Forward 1 Day

Threshold Direction

>= ▼

Threshold Value

Update

Plot Daily

Plot Calendar

Data Only

Data Listing

Web Services

Download TXT

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Date	Day of the Week	Time (LST/LDT)	Predicted (ft)	High/Low
2019/03/18	Mon	04:24 AM	10.96	H
2019/03/18	Mon	09:59 AM	5.79	L
2019/03/18	Mon	3:08 PM	10.03	H
2019/03/18	Mon	9:48 PM	-1.01	L
2019/03/19	Tue	04:59 AM	11.34	H
2019/03/19	Tue	10:42 AM	4.62	L
2019/03/19	Tue	4:09 PM	10.45	H
2019/03/19	Tue	10:39 PM	-0.88	L
2019/03/20	Wed	05:32 AM	11.62	H
2019/03/20	Wed	11:25 AM	3.40	L
2019/03/20	Wed	5:07 PM	10.75	H
2019/03/20	Wed	11:26 PM	-0.34	L
2019/03/21	Thu	06:04 AM	11.79	H
2019/03/21	Thu	12:07 PM	2.23	L
2019/03/21	Thu	6:03 PM	10.87	H
2019/03/22	Fri	12:12 AM	0.57	L
2019/03/22	Fri	06:38 AM	11.82	H
2019/03/22	Fri	12:50 PM	1.22	L
2019/03/22	Fri	6:59 PM	10.83	H

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

Note: The interval above is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.

Products available at 9447427 EDMONDS, WA

TIDES/WATER LEVELS

Water Levels (/waterlevels.html?id=9447427)

[NOAA Tide Predictions \(/noaatidepredictions.html?id=9447130\)](/noaatidepredictions.html?id=9447130)
[Harmonic Constituents \(/harcon.html?id=9447427\)](/harcon.html?id=9447427)
[Sea Level Trends \(/sltrends/sltrends_station.shtml?id=9447427\)](/sltrends/sltrends_station.shtml?id=9447427)
[Datums \(/datums.html?id=9447427\)](/datums.html?id=9447427)
[Bench Mark Sheets \(/benchmarks.html?id=9447427\)](/benchmarks.html?id=9447427)
[Extreme Water Levels \(/est/est_station.shtml?stnid=9447130\)](/est/est_station.shtml?stnid=9447130)
[Reports \(/reports.html?id=9447427\)](/reports.html?id=9447427)

METEOROLOGICAL/OTHER

[Meteorological Observations](#)
[Water Temp/Conductivity](#)

PORTS®

This station is not a member of PORTS®

OPERATIONAL FORECAST SYSTEMS

This station is not a member of OFS

INFORMATION

[Station Home Page \(/stationhome.html?id=9447427\)](/stationhome.html?id=9447427)
[Data Inventory \(/inventory.html?id=9447427\)](/inventory.html?id=9447427)
[Measurement Specifications \(/measure.html\)](/measure.html)

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[OFS \(/models.html\)](/models.html)
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[Currents \(/cdata/StationList?type=Current+Data&filter=active\)](/cdata/StationList?type=Current+Data&filter=active)
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Revised: 08/08/2018

NOAA (<http://www.noaa.gov>) / National Ocean Service (<http://oceanservice.noaa.gov>)

Web site owner: Center for Operational Oceanographic Products and Services

9447427 EDMONDS, WA

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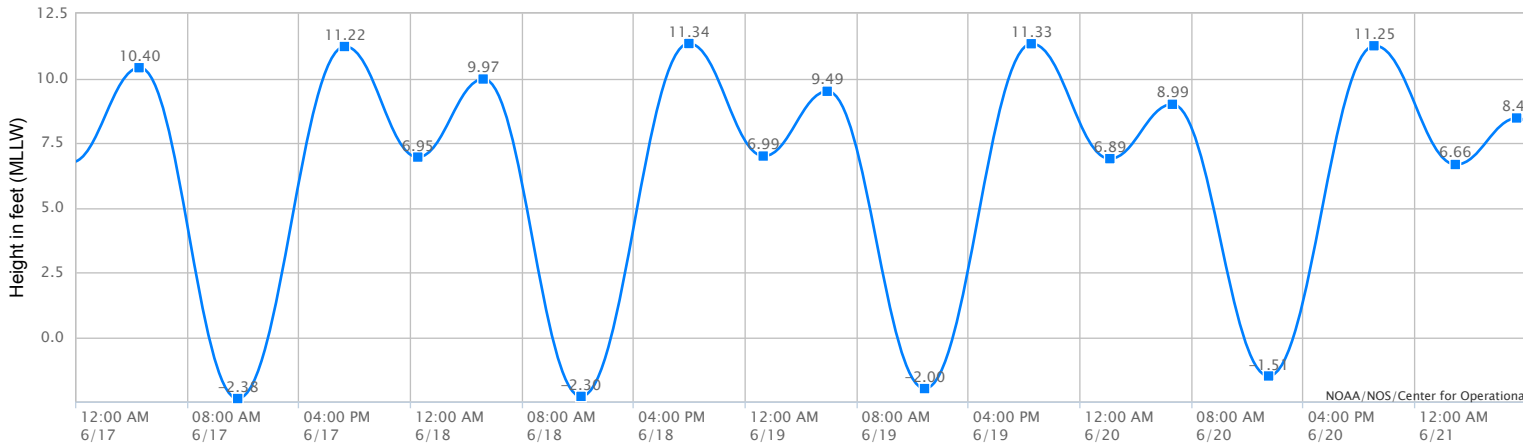
Station Info ▾ **Tides/Water Levels** ▾ Meteorological Obs. Phys. Oceanography

[Back to Station Listing \(/tide_predictions.html\)](#) | [Help \(noaatidepredictionshelp.html\)](#)

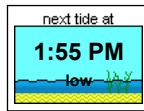
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NOAA/NOS/CO-OPS
Tide Predictions at 9447427, EDMONDS WA
From 2019/06/17 12:00 AM LST/LDT to 2019/06/21 11:59 PM LST/LDT
Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: *0.96 ft. low: *0.99 ft.)



Today's Tides (LST/LDT)



2:20 AM	low	6.76 ft.
7:00 AM	high	9.24 ft.
1:55 PM	low	-1.56 ft.
9:32 PM	high	11.15 ft.

Date Day of the Week

Open (LST/LDT)

9447427 EDMONDS, WA

From:

Jun ▾ 17 ▾ 2019

To:

Jun ▾ 21 ▾ 2019

Note: The maximum range is 31 days.

Units

Feet ▾

Timezone

Predicted (ft)

High/Low

LST/LDT

Datum (datum_options.html)

MLLW

12 Hour/24 Hour Clock

12 Hour

Data Interval

High/Low

Shift Dates

Back 1 Day

Forward 1 Day

Threshold Direction

>=

Threshold Value

Update

Plot Daily

Plot Calendar

Data Only

Data Listing

Web Services

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Date	Day of the Week	Time (LST/LDT)	Predicted (ft)	High/Low
2019/06/17	Mon	04:33 AM	10.40	H
2019/06/17	Mon	11:34 AM	-2.38	L
2019/06/17	Mon	7:16 PM	11.22	H
2019/06/18	Tue	12:29 AM	6.95	L
2019/06/18	Tue	05:12 AM	9.97	H
2019/06/18	Tue	12:11 PM	-2.30	L
2019/06/18	Tue	7:55 PM	11.34	H
2019/06/19	Wed	01:18 AM	6.99	L
2019/06/19	Wed	05:52 AM	9.49	H

Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

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Products available at 9447427 EDMONDS, WA

TIDES/WATER LEVELS

Water Levels (/waterlevels.html?id=9447427)

NOAA Tide Predictions (/noaatidepredictions.html?id=9447130)

Harmonic Constituents (/harcon.html?id=9447427)

Sea Level Trends (/sltrends/sltrends_station.shtml?id=9447427)

Datums (/datums.html?id=9447427)

Bench Mark Sheets (/benchmarks.html?id=9447427)

Extreme Water Levels (/est/est_station.shtml?stnid=9447130)

Reports (/reports.html?id=9447427)

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Water Temp/Conductivity

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[TCOON \(/tcoon.html\)](/tcoon.html)

Revised: 08/08/2018

NOAA (<http://www.noaa.gov>) / National Ocean Service (<http://oceanservice.noaa.gov>)

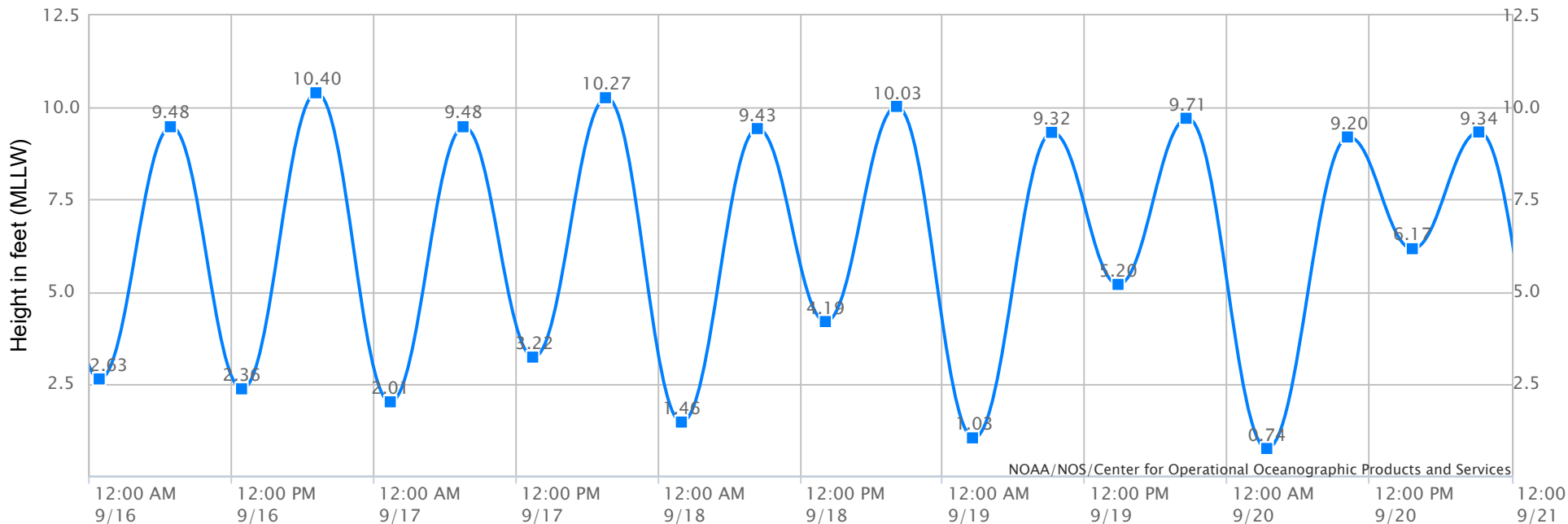
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NOAA/NOS/CO-OPS
Tide Predictions at 9447427, EDMONDS WA
 From 2019/09/16 12:00 AM LST/LDT to 2019/09/20 11:59 PM LST/LDT
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: *0.96 ft. low: *0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

High/Low Tide Prediction Data Listing

Station Name: EDMONDS, WA
 Action: Daily
 Product: Tide Predictions
 Start Date & Time: 2019/9/16 12:00 AM
 End Date & Time: 2019/9/20 11:59 PM

Source: NOAA/NOS/CO-OPS
 Prediction Type: Subordinate
 Datum: MLLW
 Height Units: Feet
 Time Zone: LST/LDT

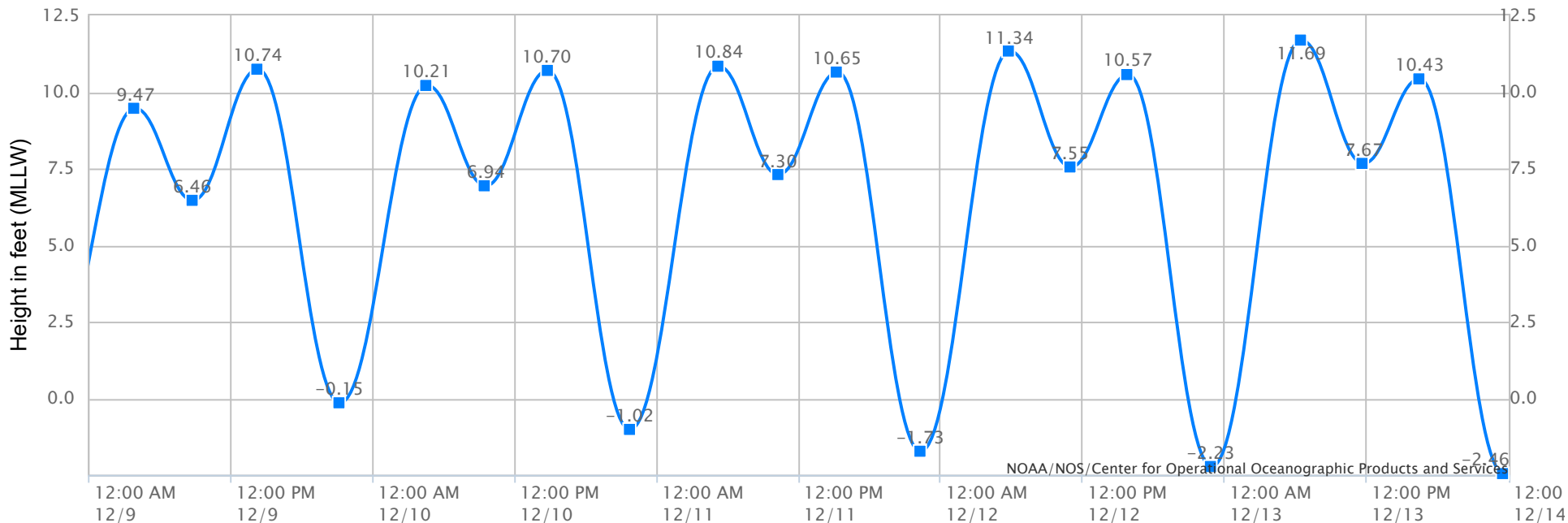
Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
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2019/09/16	Mon	12:50 AM	2.63 L	06:53 AM	9.48 H	12:52 PM	2.36 L	7:09 PM	10.40 H
2019/09/17	Tue	01:22 AM	2.01 L	07:35 AM	9.48 H	1:28 PM	3.22 L	7:37 PM	10.27 H
2019/09/18	Wed	01:57 AM	1.46 L	08:21 AM	9.43 H	2:06 PM	4.19 L	8:06 PM	10.03 H
2019/09/19	Thu	02:36 AM	1.03 L	09:13 AM	9.32 H	2:47 PM	5.20 L	8:38 PM	9.71 H
2019/09/20	Fri	03:20 AM	0.74 L	10:13 AM	9.20 H	3:37 PM	6.17 L	9:14 PM	9.34 H



[Help](#)

NOAA/NOS/CO-OPS
Tide Predictions at 9447427, EDMONDS WA
 From 2019/12/09 12:00 AM LST/LDT to 2019/12/13 11:59 PM LST/LDT
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: *0.96 ft. low: *0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

High/Low Tide Prediction Data Listing

Station Name: EDMONDS, WA
 Action: Daily
 Product: Tide Predictions
 Start Date & Time: 2019/12/9 12:00 AM
 End Date & Time: 2019/12/13 11:59 PM

Source: NOAA/NOS/CO-OPS
 Prediction Type: Subordinate
 Datum: MLLW
 Height Units: Feet
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
12/9		12:00 AM	9.47	~1:00 PM	6.46	12:00 PM	10.74	~3:00 PM	-0.15
12/10		12:00 AM	10.21	~1:00 PM	6.94	12:00 PM	10.70	~3:00 PM	-1.02
12/11		12:00 AM	10.84	~1:00 PM	7.30	12:00 PM	10.65	~3:00 PM	-1.73
12/12		12:00 AM	11.34	~1:00 PM	7.55	12:00 PM	10.57	~3:00 PM	-2.23
12/13		12:00 AM	11.69	~1:00 PM	7.67	12:00 PM	10.43	~3:00 PM	-2.46

2019/12/09	Mon	03:51 AM	9.47 H	08:44 AM	6.46 L	2:14 PM	10.74 H	9:10 PM	-0.15 L
2019/12/10	Tue	04:33 AM	10.21 H	09:30 AM	6.94 L	2:44 PM	10.70 H	9:41 PM	-1.02 L
2019/12/11	Wed	05:11 AM	10.84 H	10:14 AM	7.30 L	3:15 PM	10.65 H	10:16 PM	-1.73 L
2019/12/12	Thu	05:48 AM	11.34 H	10:58 AM	7.55 L	3:49 PM	10.57 H	10:53 PM	-2.23 L
2019/12/13	Fri	06:26 AM	11.69 H	11:43 AM	7.67 L	4:27 PM	10.43 H	11:34 PM	-2.46 L

APPENDIX B

Groundwater Sampling Event Field Notes



Low-Flow Test Report:

Test Date / Time: 3/19/2019 9:02:06 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-532 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.49 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 1805 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.06 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

47°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 9:02 AM	00:00	6.65 pH	46.73 °F	235.69 µS/cm	4.56 mg/L	14.48 NTU	203.3 mV	7.49 ft	150.00 ml/min
3/19/2019 9:05 AM	03:00	6.22 pH	46.32 °F	224.95 µS/cm	1.08 mg/L	19.19 NTU	203.9 mV	7.49 ft	150.00 ml/min
3/19/2019 9:08 AM	06:00	6.23 pH	45.97 °F	222.62 µS/cm	1.63 mg/L	14.07 NTU	205.8 mV	7.49 ft	150.00 ml/min
3/19/2019 9:11 AM	09:02	6.21 pH	46.01 °F	221.65 µS/cm	1.73 mg/L	6.49 NTU	206.9 mV	7.49 ft	150.00 ml/min
3/19/2019 9:14 AM	12:02	6.22 pH	46.03 °F	222.34 µS/cm	1.69 mg/L	2.23 NTU	207.3 mV	7.49 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-532	Final DTW: 7.55 Sample time: 0915

Low-Flow Test Report:

Test Date / Time: 3/19/2019 9:48:13 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-533 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.95 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 1352.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.05 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

56°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 9:48 AM	00:00	6.45 pH	47.29 °F	41,522 µS/cm	8.16 mg/L	12.17 NTU	249.6 mV	4.95 ft	150.00 ml/min
3/19/2019 9:51 AM	03:00	6.95 pH	46.38 °F	42,060 µS/cm	7.64 mg/L	24.64 NTU	203.7 mV	4.95 ft	150.00 ml/min
3/19/2019 9:54 AM	06:00	7.00 pH	46.45 °F	41,981 µS/cm	7.67 mg/L	17.54 NTU	203.3 mV	4.95 ft	150.00 ml/min
3/19/2019 9:57 AM	09:01	7.02 pH	46.38 °F	41,997 µS/cm	7.62 mg/L	7.58 NTU	199.4 mV	4.95 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-533	Final DTW: 5.00 Sample Time: 1005

Low-Flow Test Report:

Test Date / Time: 3/19/2019 9:50:11 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-525 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.5 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 1 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

55 and sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 9:50 AM	00:00	5.90 pH	46.27 °F	1,456.3 µS/cm	0.31 mg/L	51.05 NTU	-30.1 mV	6.50 ft	200.00 ml/min
3/19/2019 9:53 AM	03:00	5.99 pH	46.25 °F	1,436.8 µS/cm	0.30 mg/L	20.91 NTU	-23.4 mV	6.50 ft	200.00 ml/min
3/19/2019 9:56 AM	06:00	6.00 pH	46.28 °F	1,409.1 µS/cm	0.29 mg/L	18.10 NTU	-19.9 mV	6.50 ft	200.00 ml/min
3/19/2019 9:59 AM	09:00	6.00 pH	46.25 °F	1,374.0 µS/cm	0.27 mg/L	28.79 NTU	-19.7 mV	6.50 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-525	Sample time 0905 Final DTW 7.50 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/19/2019 9:57:51 AM

Project: 1q19 edmonds terminal

Operator Name: Jason little

Location Name: MW-531 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.02 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.21 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Sunny 54 degrees

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 9:57 AM	00:00	6.82 pH	50.93 °F	1,275.9 µS/cm	6.97 mg/L	22.59 NTU	123.4 mV	7.02 ft	150.00 ml/min
3/19/2019 10:00 AM	03:00	6.56 pH	49.99 °F	1,333.7 µS/cm	0.38 mg/L	23.48 NTU	77.4 mV	7.02 ft	150.00 ml/min
3/19/2019 10:03 AM	06:00	6.56 pH	50.03 °F	1,374.5 µS/cm	0.25 mg/L	23.45 NTU	64.5 mV	7.02 ft	150.00 ml/min
3/19/2019 10:06 AM	09:00	6.56 pH	50.17 °F	1,351.3 µS/cm	0.22 mg/L	4.23 NTU	57.1 mV	7.02 ft	150.00 ml/min
3/19/2019 10:09 AM	12:00	6.57 pH	50.14 °F	1,360.0 µS/cm	0.21 mg/L	8.55 NTU	51.5 mV	7.02 ft	150.00 ml/min
3/19/2019 10:12 AM	15:00	6.57 pH	50.21 °F	1,213.3 µS/cm	0.21 mg/L	9.69 NTU	46.5 mV	7.02 ft	150.00 ml/min
3/19/2019 10:15 AM	18:00	6.57 pH	50.37 °F	1,071.3 µS/cm	0.19 mg/L	12.76 NTU	42.3 mV	7.02 ft	150.00 ml/min
3/19/2019 10:18 AM	21:00	6.57 pH	50.42 °F	1,222.0 µS/cm	0.18 mg/L	17.28 NTU	38.6 mV	7.02 ft	150.00 ml/min
3/19/2019 10:21 AM	24:00	6.57 pH	50.57 °F	1,145.2 µS/cm	0.18 mg/L	37.52 NTU	35.4 mV	7.02 ft	150.00 ml/min
3/19/2019 10:24 AM	27:00	6.57 pH	50.69 °F	1,028.5 µS/cm	0.17 mg/L	51.38 NTU	32.1 mV	7.02 ft	150.00 ml/min
3/19/2019 10:27 AM	30:00	6.58 pH	50.74 °F	927.85 µS/cm	0.16 mg/L	47.20 NTU	29.5 mV	7.02 ft	150.00 ml/min
3/19/2019 10:30 AM	33:00	6.58 pH	50.85 °F	1,141.3 µS/cm	0.15 mg/L	73.85 NTU	27.0 mV	7.02 ft	150.00 ml/min

3/19/2019 10:33 AM	36:00	6.58 pH	51.04 °F	1,048.8 µS/cm	0.14 mg/L	55.01 NTU	25.2 mV	7.02 ft	150.00 ml/min
3/19/2019 10:36 AM	39:00	6.58 pH	51.21 °F	971.08 µS/cm	0.13 mg/L	64.85 NTU	22.8 mV	7.02 ft	150.00 ml/min
3/19/2019 10:39 AM	42:00	6.58 pH	51.33 °F	939.71 µS/cm	0.12 mg/L	42.68 NTU	21.3 mV	7.02 ft	150.00 ml/min
3/19/2019 10:42 AM	45:00	6.58 pH	51.73 °F	45.75 µS/cm	0.11 mg/L	51.30 NTU	19.1 mV	7.02 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-531	Sample Time- 0945 ldtw-7.01 Fdtw-7.22

Low-Flow Test Report:

Test Date / Time: 3/19/2019 10:33:46 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

<p>Location Name: MW-534 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.6 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.14 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619</p>
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Test Notes:

Weather Conditions:

59°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 10:33 AM	00:00	7.14 pH	51.48 °F	4,615.4 µS/cm	4.59 mg/L	83.54 NTU	32.6 mV	3.60 ft	150.00 ml/min
3/19/2019 10:36 AM	03:00	6.79 pH	49.86 °F	3,748.7 µS/cm	0.71 mg/L	58.21 NTU	7.5 mV	3.60 ft	150.00 ml/min
3/19/2019 10:39 AM	06:00	6.78 pH	49.68 °F	3,354.8 µS/cm	0.45 mg/L	21.99 NTU	-10.3 mV	3.60 ft	150.00 ml/min
3/19/2019 10:42 AM	09:00	6.77 pH	49.40 °F	3,297.8 µS/cm	0.45 mg/L	46.41 NTU	-25.0 mV	3.60 ft	150.00 ml/min
3/19/2019 10:45 AM	12:00	6.78 pH	49.26 °F	3,376.1 µS/cm	0.61 mg/L	16.90 NTU	-31.3 mV	3.60 ft	150.00 ml/min
3/19/2019 10:48 AM	15:00	6.77 pH	49.21 °F	3,640.6 µS/cm	0.54 mg/L	33.84 NTU	-32.8 mV	3.60 ft	150.00 ml/min
3/19/2019 10:51 AM	18:00	6.77 pH	49.17 °F	4,051.5 µS/cm	0.46 mg/L	10.33 NTU	-34.8 mV	3.60 ft	150.00 ml/min
3/19/2019 10:54 AM	21:00	6.76 pH	49.20 °F	4,488.2 µS/cm	0.41 mg/L	9.84 NTU	-35.2 mV	3.60 ft	150.00 ml/min
3/19/2019 10:57 AM	24:00	6.76 pH	49.20 °F	4,675.7 µS/cm	0.37 mg/L	11.84 NTU	-35.9 mV	3.60 ft	150.00 ml/min
3/19/2019 11:00 AM	27:00	6.75 pH	49.41 °F	5,033.6 µS/cm	0.37 mg/L	3.22 NTU	-37.9 mV	3.60 ft	150.00 ml/min
3/19/2019 11:03 AM	30:00	6.76 pH	49.57 °F	5,202.8 µS/cm	0.36 mg/L	6.45 NTU	-42.4 mV	3.60 ft	150.00 ml/min
3/19/2019 11:06 AM	33:00	6.75 pH	49.67 °F	5,344.7 µS/cm	0.34 mg/L	6.55 NTU	-44.2 mV	3.60 ft	150.00 ml/min

3/19/2019 11:09 AM	36:00	6.76 pH	49.57 °F	5,399.6 µS/cm	0.39 mg/L	3.82 NTU	-45.0 mV	3.60 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-534	Final DTW: 3.74 Sample Time: 1115 DUP-1
DUP-1	

Low-Flow Test Report:

Test Date / Time: 3/19/2019 10:39:55 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-535 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.55 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 8.5 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

60 and sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 10:39 AM	00:00	6.60 pH	47.01 °F	31,135 µS/cm	5.08 mg/L	8.76 NTU	230.4 mV	4.55 ft	200.00 ml/min
3/19/2019 10:42 AM	03:00	6.72 pH	46.67 °F	29,688 µS/cm	6.46 mg/L	3.08 NTU	191.1 mV	4.55 ft	200.00 ml/min
3/19/2019 10:45 AM	06:00	6.69 pH	46.57 °F	29,549 µS/cm	6.62 mg/L	0.27 NTU	179.3 mV	4.55 ft	200.00 ml/min
3/19/2019 10:48 AM	09:00	6.77 pH	46.47 °F	29,593 µS/cm	6.73 mg/L	0.00 NTU	168.5 mV	4.55 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-535	Sample time 1000 Final DTW 4.65 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/19/2019 11:37:19 AM

Project: 1q19 edmonds terminal (2)

Operator Name: Jason little

<p>Location Name: Lm-2 Well Diameter: 2 in Casing Type: Pvc Screen Length: 5.5 ft Top of Screen: 2.5 ft Total Depth: 8 ft Initial Depth to Water: 1.8 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 5.5 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.55 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny 60 degrees

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 11:37 AM	00:00	5.82 pH	51.86 °F	6,302.0 µS/cm	3.01 mg/L	26.63 NTU	46.6 mV	1.80 ft	150.00 ml/min
3/19/2019 11:40 AM	03:00	5.77 pH	50.87 °F	6,485.3 µS/cm	0.54 mg/L	30.39 NTU	37.1 mV	1.80 ft	150.00 ml/min
3/19/2019 11:43 AM	06:00	5.78 pH	49.99 °F	6,585.3 µS/cm	0.18 mg/L	32.58 NTU	23.8 mV	1.80 ft	150.00 ml/min
3/19/2019 11:46 AM	09:00	5.79 pH	49.64 °F	6,614.1 µS/cm	0.17 mg/L	32.86 NTU	14.3 mV	1.80 ft	150.00 ml/min
3/19/2019 11:49 AM	12:00	5.81 pH	49.60 °F	6,618.9 µS/cm	0.17 mg/L	21.38 NTU	8.3 mV	1.80 ft	150.00 ml/min
3/19/2019 11:52 AM	15:00	5.83 pH	49.50 °F	6,532.8 µS/cm	0.18 mg/L	26.87 NTU	3.5 mV	1.80 ft	150.00 ml/min
3/19/2019 11:55 AM	18:00	5.83 pH	49.42 °F	6,462.5 µS/cm	0.29 mg/L	33.21 NTU	2.3 mV	1.80 ft	150.00 ml/min
3/19/2019 11:58 AM	21:00	5.85 pH	49.48 °F	6,420.4 µS/cm	0.29 mg/L	20.09 NTU	-0.7 mV	1.80 ft	150.00 ml/min
3/19/2019 12:01 PM	24:00	5.89 pH	49.56 °F	6,330.9 µS/cm	0.27 mg/L	12.90 NTU	-7.1 mV	1.80 ft	150.00 ml/min
3/19/2019 12:04 PM	27:00	5.93 pH	49.62 °F	6,225.9 µS/cm	0.26 mg/L	7.09 NTU	-13.5 mV	1.80 ft	150.00 ml/min
3/19/2019 12:07 PM	30:00	5.97 pH	49.68 °F	6,111.8 µS/cm	0.24 mg/L	3.90 NTU	-20.0 mV	1.80 ft	150.00 ml/min
3/19/2019 12:10 PM	33:00	5.99 pH	49.56 °F	6,065.4 µS/cm	0.26 mg/L	3.15 NTU	-25.8 mV	1.80 ft	150.00 ml/min

3/19/2019 12:13 PM	36:00	6.02 pH	49.63 °F	5,989.8 µS/cm	0.26 mg/L	2.62 NTU	-31.2 mV	1.80 ft	150.00 ml/min
3/19/2019 12:16 PM	39:00	6.05 pH	49.69 °F	5,833.6 µS/cm	0.28 mg/L	1.87 NTU	-36.3 mV	1.80 ft	150.00 ml/min
3/19/2019 12:19 PM	42:00	6.08 pH	49.65 °F	5,821.9 µS/cm	0.29 mg/L	1.95 NTU	-41.2 mV	1.80 ft	150.00 ml/min
3/19/2019 12:22 PM	45:00	6.10 pH	49.55 °F	5,758.9 µS/cm	0.29 mg/L	1.68 NTU	-45.7 mV	1.80 ft	150.00 ml/min

Samples

Sample ID:	Description:
LM-2	ldtw-1.80 Fdtw-3.35 Sample time - 1130

Low-Flow Test Report:

Test Date / Time: 3/19/2019 11:37:42 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-530 Well Diameter: 1 in Casing Type: PVC Screen Length: 5 ft Top of Screen: 3 ft Total Depth: 8 ft Initial Depth to Water: 4.7 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 6.5 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 1 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60 and sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 11:37 AM	00:00	6.79 pH	48.02 °F	28,903 µS/cm	1.15 mg/L	2.92 NTU	-215.1 mV	4.70 ft	200.00 ml/min
3/19/2019 11:40 AM	03:00	6.80 pH	47.62 °F	30,025 µS/cm	0.70 mg/L	0.00 NTU	-223.4 mV	4.70 ft	200.00 ml/min
3/19/2019 11:43 AM	06:00	6.80 pH	47.63 °F	30,218 µS/cm	0.58 mg/L	0.00 NTU	-232.2 mV	4.70 ft	200.00 ml/min
3/19/2019 11:46 AM	09:00	6.80 pH	47.57 °F	30,180 µS/cm	0.66 mg/L	0.00 NTU	-234.9 mV	4.70 ft	200.00 ml/min
3/19/2019 11:49 AM	12:00	6.80 pH	47.46 °F	29,926 µS/cm	0.80 mg/L	0.00 NTU	-234.8 mV	4.70 ft	200.00 ml/min
3/19/2019 11:52 AM	15:00	6.81 pH	47.63 °F	29,822 µS/cm	0.87 mg/L	0.00 NTU	-234.0 mV	4.70 ft	200.00 ml/min
3/19/2019 11:55 AM	18:00	6.81 pH	48.08 °F	31,422 µS/cm	1.12 mg/L	8.74 NTU	-232.3 mV	4.70 ft	200.00 ml/min
3/19/2019 11:58 AM	21:00	6.82 pH	47.82 °F	28,443 µS/cm	1.07 mg/L	3.34 NTU	-233.3 mV	4.70 ft	200.00 ml/min
3/19/2019 12:01 PM	24:00	6.82 pH	47.78 °F	28,001 µS/cm	1.16 mg/L	0.00 NTU	-233.7 mV	4.70 ft	200.00 ml/min
3/19/2019 12:04 PM	27:00	6.83 pH	47.85 °F	27,708 µS/cm	1.21 mg/L	0.00 NTU	-235.0 mV	4.70 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-530

Sample time 1110
Final DTW 5.70 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/19/2019 11:52:11 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-104 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.28 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 3162.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.37 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

59°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 11:52 AM	00:00	7.31 pH	53.27 °F	338.25 µS/cm	4.41 mg/L	256.62 NTU	-54.9 mV	8.28 ft	150.00 ml/min
3/19/2019 11:55 AM	03:01	7.02 pH	51.43 °F	297.51 µS/cm	1.45 mg/L	44.76 NTU	-96.8 mV	8.28 ft	150.00 ml/min
3/19/2019 11:58 AM	06:03	6.98 pH	51.00 °F	296.48 µS/cm	1.61 mg/L	27.52 NTU	-119.8 mV	8.28 ft	150.00 ml/min
3/19/2019 12:01 PM	09:03	6.97 pH	50.86 °F	296.69 µS/cm	1.44 mg/L	15.43 NTU	-133.4 mV	8.28 ft	150.00 ml/min
3/19/2019 12:04 PM	12:04	6.97 pH	50.84 °F	310.90 µS/cm	1.16 mg/L	10.81 NTU	-138.9 mV	8.28 ft	150.00 ml/min
3/19/2019 12:07 PM	15:04	6.97 pH	50.91 °F	307.94 µS/cm	0.95 mg/L	7.64 NTU	-142.4 mV	8.28 ft	150.00 ml/min
3/19/2019 12:10 PM	18:04	6.97 pH	50.87 °F	314.95 µS/cm	0.91 mg/L	1.78 NTU	-145.1 mV	8.28 ft	150.00 ml/min
3/19/2019 12:13 PM	21:05	6.96 pH	50.88 °F	319.80 µS/cm	0.92 mg/L	0.93 NTU	-145.0 mV	8.28 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-104

Final DTW: 8.65
Sample time: 1215

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/19/2019 12:44:22 PM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-526 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.46 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 3152.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.54 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

64°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 12:44 PM	00:00	6.91 pH	54.24 °F	218.85 µS/cm	4.05 mg/L	400.89 NTU	51.0 mV	5.46 ft	150.00 ml/min
3/19/2019 12:47 PM	03:00	6.61 pH	50.99 °F	226.20 µS/cm	0.37 mg/L	670.78 NTU	76.7 mV	5.46 ft	150.00 ml/min
3/19/2019 12:50 PM	06:00	6.60 pH	50.39 °F	224.34 µS/cm	0.29 mg/L	602.13 NTU	84.8 mV	5.46 ft	150.00 ml/min
3/19/2019 12:53 PM	09:00	6.55 pH	50.21 °F	216.63 µS/cm	0.31 mg/L	611.86 NTU	90.0 mV	5.46 ft	150.00 ml/min
3/19/2019 12:56 PM	12:00	6.52 pH	49.94 °F	213.40 µS/cm	0.41 mg/L	604.56 NTU	95.8 mV	5.46 ft	150.00 ml/min
3/19/2019 12:59 PM	15:00	6.52 pH	49.67 °F	201.89 µS/cm	0.64 mg/L	611.93 NTU	101.0 mV	5.46 ft	150.00 ml/min
3/19/2019 1:02 PM	18:00	6.51 pH	49.16 °F	203.15 µS/cm	0.63 mg/L	607.40 NTU	98.7 mV	5.46 ft	150.00 ml/min
3/19/2019 1:05 PM	21:01	6.51 pH	49.14 °F	207.89 µS/cm	0.57 mg/L	599.66 NTU	95.7 mV	5.46 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-526

Final DTW: 5.90
Sample Time: 1310

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/19/2019 1:02:03 PM

Project: 1q19 edmonds terminal (3)

Operator Name: Jason little

<p>Location Name: MW-129R Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.42 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.98 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 1:02 PM	00:00	6.81 pH	53.64 °F	1,227.5 µS/cm	2.98 mg/L	3.55 NTU	-41.9 mV	5.42 ft	150.00 ml/min
3/19/2019 1:05 PM	03:00	6.87 pH	51.40 °F	1,218.8 µS/cm	0.54 mg/L	0.06 NTU	-52.4 mV	5.42 ft	150.00 ml/min
3/19/2019 1:08 PM	06:00	6.88 pH	50.60 °F	1,226.3 µS/cm	0.32 mg/L	0.12 NTU	-55.1 mV	5.42 ft	150.00 ml/min
3/19/2019 1:11 PM	09:00	6.88 pH	50.17 °F	1,224.1 µS/cm	0.25 mg/L	0.11 NTU	-56.9 mV	5.42 ft	150.00 ml/min
3/19/2019 1:14 PM	12:00	6.88 pH	49.99 °F	1,225.6 µS/cm	0.26 mg/L	0.17 NTU	-59.4 mV	5.42 ft	150.00 ml/min
3/19/2019 1:17 PM	15:00	6.88 pH	49.85 °F	1,225.4 µS/cm	0.30 mg/L	0.24 NTU	-60.4 mV	5.42 ft	150.00 ml/min
3/19/2019 1:20 PM	18:00	6.88 pH	49.77 °F	1,222.0 µS/cm	0.18 mg/L	0.24 NTU	-61.2 mV	5.42 ft	150.00 ml/min
3/19/2019 1:23 PM	21:00	6.88 pH	49.94 °F	1,225.2 µS/cm	0.26 mg/L	0.27 NTU	-62.4 mV	5.42 ft	150.00 ml/min
3/19/2019 1:26 PM	24:00	6.88 pH	50.66 °F	1,225.5 µS/cm	0.20 mg/L	0.31 NTU	-63.1 mV	5.42 ft	150.00 ml/min
3/19/2019 1:29 PM	27:00	6.87 pH	52.62 °F	1,222.9 µS/cm	0.21 mg/L	0.37 NTU	-63.3 mV	5.42 ft	150.00 ml/min
3/19/2019 1:32 PM	30:00	6.88 pH	50.20 °F	1,226.8 µS/cm	0.19 mg/L	0.52 NTU	-64.3 mV	5.42 ft	150.00 ml/min
3/19/2019 1:35 PM	33:00	6.88 pH	50.07 °F	1,234.2 µS/cm	0.14 mg/L	1.86 NTU	-65.3 mV	5.42 ft	150.00 ml/min

3/19/2019 1:38 PM	36:00	6.88 pH	50.05 °F	1,234.3 µS/cm	0.15 mg/L	1.49 NTU	-65.3 mV	5.42 ft	150.00 ml/min
3/19/2019 1:41 PM	39:00	6.88 pH	50.17 °F	1,236.0 µS/cm	0.14 mg/L	4.08 NTU	-65.4 mV	5.42 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-129R	ldtw-5.42 Fdtw-6.40 Sample time - 1250

Low-Flow Test Report:

Test Date / Time: 3/19/2019 1:04:38 PM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-E-R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.07 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4800 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.43 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/19/2019 1:04 PM	00:00	7.01 pH	53.37 °F	1,545.8 µS/cm	0.57 mg/L	0.00 NTU	-161.7 mV	7.07 ft	200.00 ml/min
3/19/2019 1:07 PM	03:00	7.02 pH	53.20 °F	1,508.8 µS/cm	0.27 mg/L	0.00 NTU	-177.7 mV	7.07 ft	200.00 ml/min
3/19/2019 1:10 PM	06:00	7.01 pH	53.13 °F	1,496.3 µS/cm	0.23 mg/L	0.00 NTU	-179.4 mV	7.07 ft	200.00 ml/min
3/19/2019 1:13 PM	09:00	7.01 pH	53.10 °F	1,487.6 µS/cm	0.18 mg/L	0.00 NTU	-182.5 mV	7.07 ft	200.00 ml/min
3/19/2019 1:16 PM	12:00	7.00 pH	53.29 °F	1,483.6 µS/cm	0.15 mg/L	0.00 NTU	-183.8 mV	7.07 ft	200.00 ml/min
3/19/2019 1:19 PM	15:00	7.00 pH	53.22 °F	1,477.6 µS/cm	0.15 mg/L	0.00 NTU	-184.5 mV	7.07 ft	200.00 ml/min
3/19/2019 1:22 PM	18:00	6.99 pH	53.29 °F	1,474.5 µS/cm	0.13 mg/L	0.01 NTU	-184.9 mV	7.07 ft	200.00 ml/min
3/19/2019 1:25 PM	21:00	6.98 pH	53.37 °F	1,474.4 µS/cm	0.12 mg/L	0.00 NTU	-185.2 mV	7.07 ft	200.00 ml/min
3/19/2019 1:28 PM	24:00	6.98 pH	53.29 °F	1,465.7 µS/cm	0.13 mg/L	0.00 NTU	-185.3 mV	7.07 ft	200.00 ml/min

Samples

Sample ID:	Description:
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MW-E-R

Sample time 1230
Final DTW 7.50 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/20/2019 8:15:36 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

<p>Location Name: MW-504 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.65 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4950 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619</p>
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Test Notes:

Weather Conditions:

46°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 8:15 AM	00:00	6.82 pH	51.45 °F	3,175.9 µS/cm	3.58 mg/L	25.09 NTU	15.6 mV	6.65 ft	150.00 ml/min
3/20/2019 8:18 AM	03:00	7.03 pH	50.68 °F	3,220.2 µS/cm	0.39 mg/L	52.13 NTU	-23.8 mV	6.65 ft	150.00 ml/min
3/20/2019 8:21 AM	06:00	7.05 pH	50.69 °F	3,222.6 µS/cm	0.33 mg/L	32.13 NTU	-29.0 mV	6.65 ft	150.00 ml/min
3/20/2019 8:24 AM	09:00	7.06 pH	50.75 °F	3,147.1 µS/cm	0.39 mg/L	15.99 NTU	-26.6 mV	6.65 ft	150.00 ml/min
3/20/2019 8:27 AM	12:00	7.07 pH	50.89 °F	2,980.5 µS/cm	0.48 mg/L	4.38 NTU	-21.3 mV	6.65 ft	150.00 ml/min
3/20/2019 8:30 AM	15:00	7.10 pH	50.93 °F	2,688.8 µS/cm	0.89 mg/L	0.87 NTU	-11.8 mV	6.65 ft	150.00 ml/min
3/20/2019 8:33 AM	18:00	7.13 pH	51.03 °F	2,290.5 µS/cm	1.56 mg/L	0.00 NTU	-1.6 mV	6.65 ft	150.00 ml/min
3/20/2019 8:36 AM	21:00	7.18 pH	51.09 °F	1,884.7 µS/cm	2.51 mg/L	0.00 NTU	8.9 mV	6.65 ft	150.00 ml/min
3/20/2019 8:39 AM	24:00	7.21 pH	51.20 °F	1,711.7 µS/cm	3.29 mg/L	0.00 NTU	14.8 mV	6.65 ft	150.00 ml/min
3/20/2019 8:42 AM	27:00	7.19 pH	51.66 °F	1,793.2 µS/cm	3.55 mg/L	0.00 NTU	19.8 mV	6.65 ft	150.00 ml/min
3/20/2019 8:45 AM	30:00	7.20 pH	51.99 °F	1,700.2 µS/cm	3.34 mg/L	0.00 NTU	17.5 mV	6.65 ft	150.00 ml/min
3/20/2019 8:48 AM	33:00	7.20 pH	52.19 °F	1,683.5 µS/cm	3.16 mg/L	0.00 NTU	19.0 mV	6.65 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-504	Final DTW: 6.67 Sample Time: 0900

Low-Flow Test Report:

Test Date / Time: 3/20/2019 9:15:12 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-507 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.88 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2400 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.22 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 9:15 AM	00:00	6.94 pH	49.22 °F	865.23 µS/cm	5.96 mg/L	25.22 NTU	139.3 mV	6.88 ft	200.00 ml/min
3/20/2019 9:18 AM	03:00	6.94 pH	49.45 °F	860.37 µS/cm	5.42 mg/L	13.00 NTU	148.6 mV	6.88 ft	200.00 ml/min
3/20/2019 9:21 AM	06:00	6.94 pH	49.61 °F	852.37 µS/cm	5.08 mg/L	2.18 NTU	150.7 mV	6.88 ft	200.00 ml/min
3/20/2019 9:24 AM	09:00	6.93 pH	49.73 °F	850.82 µS/cm	4.93 mg/L	1.26 NTU	151.6 mV	6.88 ft	200.00 ml/min
3/20/2019 9:27 AM	12:00	6.93 pH	49.93 °F	848.73 µS/cm	4.85 mg/L	0.32 NTU	152.0 mV	6.88 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-507	Sample time 0830 Final DTW 7.10 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/20/2019 9:16:36 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-502 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.25 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 3157.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.35 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

51°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 9:16 AM	00:00	6.87 pH	57.24 °F	253.33 µS/cm	4.66 mg/L	193.41 NTU	104.9 mV	5.25 ft	150.00 ml/min
3/20/2019 9:19 AM	03:01	6.60 pH	52.13 °F	251.84 µS/cm	0.92 mg/L	174.02 NTU	100.6 mV	5.25 ft	150.00 ml/min
3/20/2019 9:22 AM	06:01	6.61 pH	51.02 °F	255.10 µS/cm	0.39 mg/L	57.27 NTU	101.3 mV	5.25 ft	150.00 ml/min
3/20/2019 9:25 AM	09:02	6.61 pH	50.37 °F	252.91 µS/cm	0.24 mg/L	27.29 NTU	103.0 mV	5.25 ft	150.00 ml/min
3/20/2019 9:28 AM	12:02	6.61 pH	50.29 °F	251.05 µS/cm	0.21 mg/L	25.67 NTU	104.5 mV	5.25 ft	150.00 ml/min
3/20/2019 9:31 AM	15:03	6.61 pH	50.21 °F	249.17 µS/cm	0.19 mg/L	18.66 NTU	102.3 mV	5.25 ft	150.00 ml/min
3/20/2019 9:34 AM	18:03	6.62 pH	50.03 °F	242.93 µS/cm	0.17 mg/L	21.46 NTU	98.0 mV	5.25 ft	150.00 ml/min
3/20/2019 9:37 AM	21:03	6.61 pH	49.82 °F	239.36 µS/cm	0.17 mg/L	19.34 NTU	98.8 mV	5.25 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-502

Final DTW: 5.60
Sample Time: 1000

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/20/2019 9:19:54 AM

Project: 1q19 edmonds terminal (4)

Operator Name: Jason little

<p>Location Name: MW-506 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.74 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.09 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 9:19 AM	00:00	6.81 pH	48.54 °F	680.70 µS/cm	6.37 mg/L	14.20 NTU	96.6 mV	6.74 ft	150.00 ml/min
3/20/2019 9:22 AM	03:00	6.97 pH	48.71 °F	676.51 µS/cm	0.66 mg/L	19.80 NTU	56.5 mV	6.74 ft	150.00 ml/min
3/20/2019 9:25 AM	06:00	6.99 pH	48.77 °F	671.58 µS/cm	0.39 mg/L	9.46 NTU	41.9 mV	6.74 ft	150.00 ml/min
3/20/2019 9:28 AM	09:00	6.99 pH	48.85 °F	665.00 µS/cm	0.37 mg/L	7.26 NTU	32.4 mV	6.74 ft	150.00 ml/min
3/20/2019 9:31 AM	12:00	7.00 pH	48.88 °F	661.21 µS/cm	0.54 mg/L	4.53 NTU	25.4 mV	6.74 ft	150.00 ml/min
3/20/2019 9:34 AM	15:00	7.01 pH	49.00 °F	655.81 µS/cm	0.49 mg/L	4.38 NTU	19.4 mV	6.74 ft	150.00 ml/min
3/20/2019 9:37 AM	18:00	7.01 pH	48.99 °F	651.19 µS/cm	0.59 mg/L	13.04 NTU	16.3 mV	6.74 ft	150.00 ml/min
3/20/2019 9:40 AM	21:00	7.01 pH	49.06 °F	645.40 µS/cm	0.58 mg/L	5.87 NTU	12.7 mV	6.74 ft	150.00 ml/min
3/20/2019 9:43 AM	24:00	7.01 pH	49.10 °F	637.87 µS/cm	0.56 mg/L	7.51 NTU	10.0 mV	6.74 ft	150.00 ml/min
3/20/2019 9:46 AM	27:00	7.00 pH	49.15 °F	638.09 µS/cm	0.61 mg/L	8.77 NTU	8.2 mV	6.74 ft	150.00 ml/min
3/20/2019 9:49 AM	30:00	7.01 pH	49.25 °F	631.86 µS/cm	0.66 mg/L	7.54 NTU	5.5 mV	6.74 ft	150.00 ml/min
3/20/2019 9:52 AM	33:00	7.01 pH	49.33 °F	631.34 µS/cm	0.70 mg/L	9.46 NTU	3.8 mV	6.74 ft	150.00 ml/min

3/20/2019 9:55 AM	36:00	7.00 pH	49.29 °F	622.67 µS/cm	0.64 mg/L	12.00 NTU	2.2 mV	6.74 ft	150.00 ml/min
3/20/2019 9:58 AM	39:00	7.00 pH	49.33 °F	620.96 µS/cm	0.61 mg/L	12.45 NTU	1.1 mV	6.74 ft	150.00 ml/min
3/20/2019 10:01 AM	42:00	7.01 pH	49.33 °F	614.43 µS/cm	0.57 mg/L	14.92 NTU	-0.1 mV	6.74 ft	150.00 ml/min
3/20/2019 10:04 AM	45:00	7.01 pH	49.36 °F	602.28 µS/cm	0.38 mg/L	18.07 NTU	-1.2 mV	6.74 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-506	ldtw-6.74 Fdtw-6.83 Sample time-0910
MW-506 MS/MSD	ldtw-6.74 Fdtw-6.83 Sample time-0910 Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/20/2019 9:55:33 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-505 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.69 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 8.5 ft Estimated Total Volume Pumped: 9000 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 9:55 AM	00:00	7.33 pH	52.33 °F	0.36 µS/cm	11.55 mg/L	0.00 NTU	129.2 mV	4.69 ft	200.00 ml/min
3/20/2019 9:58 AM	03:00	6.69 pH	51.61 °F	536.87 µS/cm	0.37 mg/L	49.29 NTU	16.4 mV	4.69 ft	200.00 ml/min
3/20/2019 10:01 AM	06:00	6.70 pH	51.50 °F	783.19 µS/cm	0.25 mg/L	40.08 NTU	-23.0 mV	4.69 ft	200.00 ml/min
3/20/2019 10:04 AM	09:00	6.71 pH	51.39 °F	1,124.3 µS/cm	0.19 mg/L	30.39 NTU	-68.8 mV	4.69 ft	200.00 ml/min
3/20/2019 10:07 AM	12:00	6.74 pH	51.26 °F	1,417.1 µS/cm	0.14 mg/L	23.78 NTU	-97.6 mV	4.69 ft	200.00 ml/min
3/20/2019 10:10 AM	15:00	6.77 pH	51.20 °F	1,564.6 µS/cm	0.11 mg/L	17.48 NTU	-108.8 mV	4.69 ft	200.00 ml/min
3/20/2019 10:13 AM	18:00	6.79 pH	51.20 °F	1,553.3 µS/cm	0.09 mg/L	14.11 NTU	-114.8 mV	4.69 ft	200.00 ml/min
3/20/2019 10:16 AM	21:00	6.78 pH	51.30 °F	1,606.0 µS/cm	0.20 mg/L	12.64 NTU	-120.4 mV	4.69 ft	200.00 ml/min
3/20/2019 10:19 AM	24:00	6.81 pH	51.28 °F	1,730.0 µS/cm	0.22 mg/L	8.61 NTU	-124.0 mV	4.69 ft	200.00 ml/min
3/20/2019 10:22 AM	27:00	6.82 pH	51.24 °F	1,665.1 µS/cm	0.30 mg/L	7.74 NTU	-129.0 mV	4.69 ft	200.00 ml/min
3/20/2019 10:25 AM	30:00	6.84 pH	51.21 °F	1,800.7 µS/cm	0.21 mg/L	5.05 NTU	-132.5 mV	4.69 ft	200.00 ml/min
3/20/2019 10:28 AM	33:00	6.84 pH	51.23 °F	1,824.0 µS/cm	0.18 mg/L	4.05 NTU	-137.3 mV	4.69 ft	200.00 ml/min
3/20/2019 10:31 AM	36:00	6.85 pH	51.24 °F	1,709.7 µS/cm	0.21 mg/L	5.02 NTU	-139.6 mV	4.69 ft	200.00 ml/min

3/20/2019 10:34 AM	39:00	6.86 pH	51.18 °F	1,891.3 µS/cm	0.27 mg/L	1.74 NTU	-141.7 mV	4.69 ft	200.00 ml/min
3/20/2019 10:37 AM	42:00	6.85 pH	51.31 °F	1,774.2 µS/cm	0.13 mg/L	2.98 NTU	-143.7 mV	4.69 ft	200.00 ml/min
3/20/2019 10:40 AM	45:00	6.87 pH	51.26 °F	1,684.9 µS/cm	0.19 mg/L	3.81 NTU	-145.3 mV	4.69 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-505	Sample time 0945 Final DTW 4.79 ft btoc
DUP-2	

Low-Flow Test Report:

Test Date / Time: 3/20/2019 10:10:47 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

<p>Location Name: MW-503 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.2 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.07 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619</p>
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Test Notes:

Weather Conditions:

53°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 10:10 AM	00:00	6.65 pH	59.13 °F	396.11 µS/cm	6.47 mg/L	109.11 NTU	7.8 mV	5.20 ft	150.00 ml/min
3/20/2019 10:13 AM	03:00	6.70 pH	56.25 °F	411.42 µS/cm	1.35 mg/L	455.36 NTU	-36.3 mV	5.20 ft	150.00 ml/min
3/20/2019 10:16 AM	06:00	6.69 pH	56.49 °F	410.51 µS/cm	0.84 mg/L	44.71 NTU	-44.5 mV	5.20 ft	150.00 ml/min
3/20/2019 10:19 AM	09:00	6.70 pH	57.17 °F	416.01 µS/cm	0.47 mg/L	60.01 NTU	-53.1 mV	5.20 ft	150.00 ml/min
3/20/2019 10:22 AM	12:00	6.69 pH	56.37 °F	414.25 µS/cm	0.34 mg/L	52.42 NTU	-60.2 mV	5.20 ft	150.00 ml/min
3/20/2019 10:25 AM	15:00	6.69 pH	58.07 °F	417.76 µS/cm	0.28 mg/L	55.81 NTU	-57.9 mV	5.20 ft	150.00 ml/min
3/20/2019 10:28 AM	18:00	6.68 pH	57.19 °F	411.04 µS/cm	0.31 mg/L	14.78 NTU	-60.1 mV	5.20 ft	150.00 ml/min
3/20/2019 10:31 AM	21:00	6.68 pH	56.56 °F	409.83 µS/cm	0.24 mg/L	15.41 NTU	-64.9 mV	5.20 ft	150.00 ml/min
3/20/2019 10:34 AM	24:00	6.68 pH	56.56 °F	410.31 µS/cm	0.20 mg/L	22.24 NTU	-67.9 mV	5.20 ft	150.00 ml/min
3/20/2019 10:37 AM	27:00	6.68 pH	56.97 °F	409.29 µS/cm	0.22 mg/L	27.46 NTU	-68.0 mV	5.20 ft	150.00 ml/min
3/20/2019 10:40 AM	30:00	6.68 pH	56.77 °F	407.31 µS/cm	0.17 mg/L	19.65 NTU	-70.8 mV	5.20 ft	150.00 ml/min
3/20/2019 10:43 AM	33:00	6.67 pH	56.99 °F	408.85 µS/cm	0.16 mg/L	18.10 NTU	-72.0 mV	5.20 ft	150.00 ml/min

3/20/2019 10:46 AM	36:00	6.67 pH	57.14 °F	406.88 µS/cm	0.16 mg/L	17.54 NTU	-72.5 mV	5.20 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-503	Final DTW: 5.32 Sample Time: 1100

Low-Flow Test Report:

Test Date / Time: 3/20/2019 10:50:44 AM

Project: 1q19 edmonds terminal (5)

Operator Name: Jason little

<p>Location Name: MW-509 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.59 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 10:50 AM	00:00	6.57 pH	51.38 °F	24,203 µS/cm	6.03 mg/L	0.83 NTU	109.9 mV	3.59 ft	150.00 ml/min
3/20/2019 10:53 AM	03:00	6.72 pH	49.81 °F	21,957 µS/cm	0.43 mg/L	3.29 NTU	118.5 mV	3.59 ft	150.00 ml/min
3/20/2019 10:56 AM	06:00	6.73 pH	49.32 °F	17,652 µS/cm	1.03 mg/L	0.27 NTU	117.4 mV	3.59 ft	150.00 ml/min
3/20/2019 10:59 AM	09:00	6.74 pH	49.09 °F	16,306 µS/cm	1.19 mg/L	0.26 NTU	117.6 mV	3.59 ft	150.00 ml/min
3/20/2019 11:02 AM	12:00	6.73 pH	49.11 °F	16,574 µS/cm	1.24 mg/L	0.19 NTU	118.3 mV	3.59 ft	150.00 ml/min
3/20/2019 11:05 AM	15:00	6.72 pH	49.17 °F	16,884 µS/cm	1.27 mg/L	0.22 NTU	119.8 mV	3.59 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-509	Sample time-1015 ldtw-3.59 Fdtw-3.60

Low-Flow Test Report:

Test Date / Time: 3/20/2019 11:22:08 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-20R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4 ft Total Depth: 14.5 ft Initial Depth to Water: 6.63 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.9 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

58°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 11:22 AM	00:00	6.85 pH	59.79 °F	9,677.6 µS/cm	3.73 mg/L	95.31 NTU	42.2 mV	6.63 ft	150.00 ml/min
3/20/2019 11:25 AM	03:00	7.20 pH	54.48 °F	10,320 µS/cm	1.67 mg/L	76.11 NTU	-87.6 mV	6.63 ft	150.00 ml/min
3/20/2019 11:28 AM	06:00	7.22 pH	52.89 °F	10,355 µS/cm	0.94 mg/L	90.51 NTU	-118.0 mV	6.63 ft	150.00 ml/min
3/20/2019 11:31 AM	09:00	7.23 pH	52.10 °F	10,489 µS/cm	0.60 mg/L	52.73 NTU	-131.9 mV	6.63 ft	150.00 ml/min
3/20/2019 11:34 AM	12:00	7.24 pH	51.64 °F	10,261 µS/cm	0.52 mg/L	68.41 NTU	-142.2 mV	6.63 ft	150.00 ml/min
3/20/2019 11:37 AM	15:00	7.24 pH	51.43 °F	10,265 µS/cm	0.55 mg/L	71.80 NTU	-149.9 mV	6.63 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-20R	Final DTW: 6.72 Sample Time: 1200

Low-Flow Test Report:

Test Date / Time: 3/20/2019 11:23:50 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-139R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4.4 ft Total Depth: 14.9 ft Initial Depth to Water: 7.1 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 3000 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 11:23 AM	00:00	6.82 pH	49.22 °F	27,474 µS/cm	4.70 mg/L	3.33 NTU	45.3 mV	7.10 ft	200.00 ml/min
3/20/2019 11:26 AM	03:00	6.82 pH	48.58 °F	27,435 µS/cm	4.46 mg/L	0.05 NTU	74.0 mV	7.10 ft	200.00 ml/min
3/20/2019 11:29 AM	06:00	6.83 pH	48.48 °F	26,838 µS/cm	4.75 mg/L	1.07 NTU	76.1 mV	7.10 ft	200.00 ml/min
3/20/2019 11:32 AM	09:00	6.86 pH	48.08 °F	25,452 µS/cm	5.90 mg/L	3.03 NTU	79.1 mV	7.10 ft	200.00 ml/min
3/20/2019 11:35 AM	12:00	6.87 pH	47.86 °F	25,356 µS/cm	6.50 mg/L	2.72 NTU	82.7 mV	7.10 ft	200.00 ml/min
3/20/2019 11:38 AM	15:00	6.87 pH	47.75 °F	25,314 µS/cm	6.78 mg/L	1.86 NTU	86.2 mV	7.10 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-139R	Sample time 1045 Final DTW 7.11 fbtoc

Low-Flow Test Report:

Test Date / Time: 3/20/2019 11:37:03 AM

Project: 1q19 edmonds terminal (6)

Operator Name: Jason little

<p>Location Name: MW-518 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 2.5 ft Total Depth: 12.5 ft Initial Depth to Water: 8.39 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.15 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 11:37 AM	00:00	7.50 pH	51.36 °F	635.42 µS/cm	5.11 mg/L	189.46 NTU	93.7 mV	8.39 ft	150.00 ml/min
3/20/2019 11:40 AM	03:00	7.33 pH	50.78 °F	629.79 µS/cm	0.47 mg/L	16.33 NTU	73.9 mV	8.39 ft	150.00 ml/min
3/20/2019 11:43 AM	06:00	7.24 pH	50.78 °F	639.36 µS/cm	0.47 mg/L	17.37 NTU	64.4 mV	8.39 ft	150.00 ml/min
3/20/2019 11:46 AM	09:00	7.20 pH	50.60 °F	663.24 µS/cm	0.41 mg/L	19.66 NTU	62.0 mV	8.39 ft	150.00 ml/min
3/20/2019 11:49 AM	12:00	7.19 pH	50.55 °F	667.80 µS/cm	0.41 mg/L	27.57 NTU	58.4 mV	8.39 ft	150.00 ml/min
3/20/2019 11:52 AM	15:00	7.18 pH	50.40 °F	675.10 µS/cm	0.33 mg/L	7.78 NTU	51.8 mV	8.39 ft	150.00 ml/min
3/20/2019 11:55 AM	18:00	7.17 pH	50.42 °F	673.98 µS/cm	0.28 mg/L	7.68 NTU	46.6 mV	8.39 ft	150.00 ml/min
3/20/2019 11:58 AM	21:00	7.16 pH	50.43 °F	673.21 µS/cm	0.33 mg/L	3.60 NTU	42.9 mV	8.39 ft	150.00 ml/min
3/20/2019 12:01 PM	24:00	7.16 pH	50.47 °F	671.86 µS/cm	0.35 mg/L	6.66 NTU	40.4 mV	8.39 ft	150.00 ml/min
3/20/2019 12:04 PM	27:00	7.15 pH	50.47 °F	681.68 µS/cm	0.37 mg/L	284.22 NTU	38.6 mV	8.39 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-518	ldtw-8.39 Fdtw-8.54 Sample time-1115

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/20/2019 12:08:38 PM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-101 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.85 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11.5 ft Estimated Total Volume Pumped: 3000 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.25 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/20/2019 12:08 PM	00:00	7.34 pH	51.68 °F	206.76 µS/cm	8.78 mg/L	7.94 NTU	67.5 mV	8.85 ft	200.00 ml/min
3/20/2019 12:11 PM	03:00	6.96 pH	51.47 °F	218.26 µS/cm	7.83 mg/L	3.50 NTU	81.9 mV	8.85 ft	200.00 ml/min
3/20/2019 12:14 PM	06:00	6.88 pH	51.24 °F	198.78 µS/cm	7.28 mg/L	4.24 NTU	91.1 mV	8.85 ft	200.00 ml/min
3/20/2019 12:17 PM	09:00	6.86 pH	51.27 °F	178.81 µS/cm	7.05 mg/L	5.01 NTU	98.2 mV	8.85 ft	200.00 ml/min
3/20/2019 12:20 PM	12:00	6.84 pH	51.42 °F	175.71 µS/cm	7.06 mg/L	8.06 NTU	102.0 mV	8.85 ft	200.00 ml/min
3/20/2019 12:23 PM	15:00	6.80 pH	51.79 °F	184.33 µS/cm	6.88 mg/L	1.48 NTU	104.5 mV	8.85 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-101	Sample time 1130 Final DTW 9.10 fbtoc

Low-Flow Test Report:

Test Date / Time: 3/21/2019 8:11:14 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

<p>Location Name: MW-512 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.52 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619</p>
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Test Notes:

Weather Conditions:

47°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 8:11 AM	00:00	7.24 pH	51.54 °F	732.79 µS/cm	5.35 mg/L	39.50 NTU	50.7 mV	6.52 ft	150.00 ml/min
3/21/2019 8:14 AM	03:00	7.23 pH	49.36 °F	658.18 µS/cm	0.89 mg/L	28.71 NTU	-64.9 mV	6.52 ft	150.00 ml/min
3/21/2019 8:17 AM	06:00	7.23 pH	48.73 °F	585.78 µS/cm	0.40 mg/L	10.53 NTU	-109.5 mV	6.52 ft	150.00 ml/min
3/21/2019 8:20 AM	09:00	7.23 pH	48.41 °F	504.79 µS/cm	0.33 mg/L	0.00 NTU	-123.7 mV	6.52 ft	150.00 ml/min
3/21/2019 8:23 AM	12:00	7.23 pH	48.26 °F	435.12 µS/cm	0.40 mg/L	0.00 NTU	-123.7 mV	6.52 ft	150.00 ml/min
3/21/2019 8:26 AM	15:00	7.22 pH	48.15 °F	379.06 µS/cm	0.51 mg/L	0.00 NTU	-120.0 mV	6.52 ft	150.00 ml/min
3/21/2019 8:29 AM	18:00	7.21 pH	48.09 °F	353.05 µS/cm	0.64 mg/L	0.00 NTU	-116.2 mV	6.52 ft	150.00 ml/min
3/21/2019 8:32 AM	21:00	7.21 pH	48.06 °F	330.26 µS/cm	0.66 mg/L	0.00 NTU	-116.7 mV	6.52 ft	150.00 ml/min
3/21/2019 8:35 AM	24:00	7.20 pH	48.08 °F	318.03 µS/cm	0.78 mg/L	0.00 NTU	-112.3 mV	6.52 ft	150.00 ml/min
3/21/2019 8:38 AM	27:00	7.20 pH	48.02 °F	306.63 µS/cm	0.81 mg/L	0.00 NTU	-110.6 mV	6.52 ft	150.00 ml/min
3/21/2019 8:41 AM	30:00	7.21 pH	47.96 °F	291.77 µS/cm	0.98 mg/L	0.00 NTU	-106.2 mV	6.52 ft	150.00 ml/min
3/21/2019 8:44 AM	33:00	7.21 pH	47.93 °F	289.30 µS/cm	1.14 mg/L	0.00 NTU	-103.6 mV	6.52 ft	150.00 ml/min

3/21/2019 8:47 AM	36:00	7.21 pH	47.96 °F	285.58 µS/cm	1.24 mg/L	0.00 NTU	-102.7 mV	6.52 ft	150.00 ml/min
3/21/2019 8:50 AM	39:00	7.21 pH	47.97 °F	285.50 µS/cm	1.23 mg/L	0.00 NTU	-103.2 mV	6.52 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-512	Final DTW: 6.52 Sample Time: 0900

Low-Flow Test Report:

Test Date / Time: 3/21/2019 9:18:44 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-516 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.55 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

49°F

Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 9:18 AM	00:00	7.55 pH	49.81 °F	122.24 µS/cm	9.17 mg/L	0.00 NTU	25.8 mV	4.55 ft	150.00 ml/min
3/21/2019 9:21 AM	03:00	7.43 pH	48.85 °F	123.76 µS/cm	6.67 mg/L	2.13 NTU	44.3 mV	4.55 ft	150.00 ml/min
3/21/2019 9:24 AM	06:00	7.41 pH	48.45 °F	124.68 µS/cm	6.04 mg/L	0.00 NTU	52.4 mV	4.55 ft	150.00 ml/min
3/21/2019 9:27 AM	09:00	7.40 pH	48.32 °F	124.92 µS/cm	6.05 mg/L	0.00 NTU	58.0 mV	4.55 ft	150.00 ml/min
3/21/2019 9:30 AM	12:00	7.40 pH	48.20 °F	123.98 µS/cm	5.98 mg/L	0.00 NTU	62.6 mV	4.55 ft	150.00 ml/min
3/21/2019 9:33 AM	15:00	7.40 pH	48.29 °F	124.54 µS/cm	6.00 mg/L	0.00 NTU	66.6 mV	4.55 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-516	Final DTW: 4.55 Sample Time: 0945

Low-Flow Test Report:

Test Date / Time: 3/21/2019 9:19:43 AM

Project: 1q19 edmonds terminal (7)

Operator Name: Jason little

Location Name: MW-514 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.71 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 6300 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Sample time-0905

ldtw-4.71

Fdtw-4.71

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 9:19 AM	00:00	6.65 pH	49.92 °F	743.25 µS/cm	8.00 mg/L	7.83 NTU	270.1 mV	4.71 ft	150.00 ml/min
3/21/2019 9:22 AM	03:00	6.76 pH	50.07 °F	744.44 µS/cm	0.40 mg/L	0.90 NTU	272.0 mV	4.71 ft	150.00 ml/min
3/21/2019 9:25 AM	06:00	6.78 pH	49.97 °F	750.34 µS/cm	0.29 mg/L	1.56 NTU	273.2 mV	4.71 ft	150.00 ml/min
3/21/2019 9:28 AM	09:00	6.77 pH	49.91 °F	750.11 µS/cm	0.26 mg/L	9.29 NTU	274.4 mV	4.71 ft	150.00 ml/min
3/21/2019 9:31 AM	12:00	6.78 pH	49.84 °F	742.70 µS/cm	0.31 mg/L	5.25 NTU	275.4 mV	4.71 ft	150.00 ml/min
3/21/2019 9:34 AM	15:00	6.79 pH	49.87 °F	742.28 µS/cm	0.30 mg/L	1.22 NTU	275.9 mV	4.71 ft	150.00 ml/min
3/21/2019 9:37 AM	18:00	6.80 pH	49.82 °F	723.48 µS/cm	0.44 mg/L	4.45 NTU	276.3 mV	4.71 ft	150.00 ml/min
3/21/2019 9:40 AM	21:00	6.80 pH	49.81 °F	698.15 µS/cm	0.64 mg/L	0.56 NTU	277.9 mV	4.71 ft	150.00 ml/min
3/21/2019 9:43 AM	24:00	6.82 pH	49.74 °F	653.00 µS/cm	1.05 mg/L	0.22 NTU	278.9 mV	4.71 ft	150.00 ml/min
3/21/2019 9:46 AM	27:00	6.84 pH	49.67 °F	619.20 µS/cm	1.51 mg/L	0.22 NTU	279.6 mV	4.71 ft	150.00 ml/min

3/21/2019 9:49 AM	30:00	6.85 pH	49.66 °F	597.05 µS/cm	1.84 mg/L	0.14 NTU	280.0 mV	4.71 ft	150.00 ml/min
3/21/2019 9:52 AM	33:00	6.87 pH	49.56 °F	576.00 µS/cm	2.21 mg/L	0.20 NTU	280.4 mV	4.71 ft	150.00 ml/min
3/21/2019 9:55 AM	36:00	6.89 pH	49.67 °F	556.21 µS/cm	2.43 mg/L	0.16 NTU	280.4 mV	4.71 ft	150.00 ml/min
3/21/2019 9:58 AM	39:00	6.90 pH	49.68 °F	548.46 µS/cm	2.65 mg/L	0.36 NTU	280.1 mV	4.71 ft	150.00 ml/min
3/21/2019 10:01 AM	42:00	6.91 pH	49.64 °F	532.46 µS/cm	2.83 mg/L	0.27 NTU	280.1 mV	4.71 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-514	Sample time-0905 ldtw-4.71 Fdtw-4.71

Low-Flow Test Report:

Test Date / Time: 3/21/2019 9:21:53 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-511 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.03 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 11.5 ft Estimated Total Volume Pumped: 1200 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

55, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 9:21 AM	00:00	6.54 pH	49.51 °F	253.96 µS/cm	6.32 mg/L	0.00 NTU	177.6 mV	8.03 ft	200.00 ml/min
3/21/2019 9:24 AM	03:00	6.56 pH	49.43 °F	253.35 µS/cm	6.15 mg/L	4.23 NTU	182.4 mV	8.03 ft	200.00 ml/min
3/21/2019 9:27 AM	06:00	6.57 pH	49.50 °F	253.44 µS/cm	6.04 mg/L	4.38 NTU	183.6 mV	8.03 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-511	Sample time 0840 Final DTW 8.05 ft btoc
MW-511-MS	
MW-511-MSD	

Low-Flow Test Report:

Test Date / Time: 3/21/2019 9:54:55 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-517 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.31 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 1350 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

50°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 9:54 AM	00:00	7.45 pH	50.08 °F	96.35 µS/cm	7.70 mg/L	5.94 NTU	80.3 mV	5.31 ft	150.00 ml/min
3/21/2019 9:57 AM	03:00	7.32 pH	48.23 °F	99.38 µS/cm	5.81 mg/L	0.00 NTU	88.9 mV	5.31 ft	150.00 ml/min
3/21/2019 10:00 AM	06:00	7.29 pH	48.32 °F	100.33 µS/cm	5.36 mg/L	0.30 NTU	91.4 mV	5.31 ft	150.00 ml/min
3/21/2019 10:03 AM	09:00	7.30 pH	48.25 °F	101.04 µS/cm	5.38 mg/L	0.00 NTU	93.7 mV	5.31 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-517	Final DTW: 5.32 Sample Time: 1010
DUP-3	

Low-Flow Test Report:

Test Date / Time: 3/21/2019 10:23:06 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-515 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.9 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 4200 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 10:23 AM	00:00	7.13 pH	49.36 °F	312.04 µS/cm	2.04 mg/L	31.20 NTU	153.9 mV	4.90 ft	200.00 ml/min
3/21/2019 10:26 AM	03:00	7.17 pH	49.10 °F	312.20 µS/cm	1.67 mg/L	29.13 NTU	151.4 mV	4.90 ft	200.00 ml/min
3/21/2019 10:29 AM	06:00	7.17 pH	48.96 °F	290.30 µS/cm	1.91 mg/L	26.54 NTU	151.8 mV	4.90 ft	200.00 ml/min
3/21/2019 10:32 AM	09:00	7.19 pH	48.83 °F	271.00 µS/cm	2.58 mg/L	25.18 NTU	151.1 mV	4.90 ft	200.00 ml/min
3/21/2019 10:35 AM	12:00	7.19 pH	48.80 °F	255.87 µS/cm	3.07 mg/L	25.95 NTU	151.3 mV	4.90 ft	200.00 ml/min
3/21/2019 10:38 AM	15:00	7.17 pH	48.64 °F	231.74 µS/cm	3.81 mg/L	21.54 NTU	151.5 mV	4.90 ft	200.00 ml/min
3/21/2019 10:41 AM	18:00	7.18 pH	48.56 °F	226.69 µS/cm	4.25 mg/L	21.83 NTU	151.2 mV	4.90 ft	200.00 ml/min
3/21/2019 10:44 AM	21:00	7.17 pH	48.51 °F	229.00 µS/cm	4.37 mg/L	20.02 NTU	151.8 mV	4.90 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-515	Sample time 0950 Final DTW 4.90 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/21/2019 10:28:25 AM

Project: 1q19 edmonds terminal (8)

Operator Name: Jason little

<p>Location Name: MW-513 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.38 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 6300 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 10:28 AM	00:00	6.72 pH	51.31 °F	3,316.1 µS/cm	2.39 mg/L	29.21 NTU	95.4 mV	4.38 ft	150.00 ml/min
3/21/2019 10:31 AM	03:00	6.78 pH	51.21 °F	3,327.3 µS/cm	0.60 mg/L	7.53 NTU	61.3 mV	4.38 ft	150.00 ml/min
3/21/2019 10:34 AM	06:00	6.78 pH	51.58 °F	3,333.6 µS/cm	0.36 mg/L	8.21 NTU	46.5 mV	4.38 ft	150.00 ml/min
3/21/2019 10:37 AM	09:00	6.79 pH	51.26 °F	3,310.3 µS/cm	0.28 mg/L	14.05 NTU	37.2 mV	4.38 ft	150.00 ml/min
3/21/2019 10:40 AM	12:00	6.79 pH	51.30 °F	3,300.6 µS/cm	0.28 mg/L	14.73 NTU	28.6 mV	4.38 ft	150.00 ml/min
3/21/2019 10:43 AM	15:00	6.80 pH	51.22 °F	3,237.5 µS/cm	0.29 mg/L	20.85 NTU	21.1 mV	4.38 ft	150.00 ml/min
3/21/2019 10:46 AM	18:00	6.82 pH	51.17 °F	2,940.7 µS/cm	0.50 mg/L	23.24 NTU	15.7 mV	4.38 ft	150.00 ml/min
3/21/2019 10:49 AM	21:00	6.86 pH	51.12 °F	2,565.3 µS/cm	0.94 mg/L	9.72 NTU	13.5 mV	4.38 ft	150.00 ml/min
3/21/2019 10:52 AM	24:00	6.88 pH	51.17 °F	2,282.1 µS/cm	1.47 mg/L	10.55 NTU	13.1 mV	4.38 ft	150.00 ml/min
3/21/2019 10:55 AM	27:00	6.89 pH	51.06 °F	2,050.4 µS/cm	2.03 mg/L	14.79 NTU	13.5 mV	4.38 ft	150.00 ml/min
3/21/2019 10:58 AM	30:00	6.90 pH	50.99 °F	1,932.1 µS/cm	2.51 mg/L	13.57 NTU	14.1 mV	4.38 ft	150.00 ml/min
3/21/2019 11:01 AM	33:00	6.91 pH	50.76 °F	1,803.5 µS/cm	2.87 mg/L	15.32 NTU	14.3 mV	4.38 ft	150.00 ml/min

3/21/2019 11:04 AM	36:00	6.93 pH	50.70 °F	1,691.6 µS/cm	3.28 mg/L	12.40 NTU	14.3 mV	4.38 ft	150.00 ml/min
3/21/2019 11:07 AM	39:00	6.92 pH	50.78 °F	1,694.8 µS/cm	3.58 mg/L	8.45 NTU	14.3 mV	4.38 ft	150.00 ml/min
3/21/2019 11:10 AM	42:00	6.94 pH	50.79 °F	1,593.6 µS/cm	3.82 mg/L	6.56 NTU	13.8 mV	4.38 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-513	Sample time-1015 ldtw-4.38 Fdtw-4.40

Low-Flow Test Report:

Test Date / Time: 3/21/2019 11:06:19 AM

Project: 1Q19 Edmonds Terminal

Operator Name: Kelsey Franz

Location Name: MW-143 Well Diameter: 2 in Casing Type: PVC Screen Length: 10.1 ft Top of Screen: 3.5 ft Total Depth: 14.1 ft Initial Depth to Water: 5.05 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.39 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466619
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Test Notes:

Weather Conditions:

52°F

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 11:06 AM	00:00	6.66 pH	58.99 °F	398.19 µS/cm	4.80 mg/L	34.68 NTU	-128.9 mV	5.05 ft	150.00 ml/min
3/21/2019 11:09 AM	03:00	6.70 pH	53.46 °F	419.38 µS/cm	0.75 mg/L	25.66 NTU	-151.5 mV	5.05 ft	150.00 ml/min
3/21/2019 11:12 AM	06:00	6.72 pH	52.20 °F	426.45 µS/cm	0.35 mg/L	18.87 NTU	-155.1 mV	5.05 ft	150.00 ml/min
3/21/2019 11:15 AM	09:00	6.74 pH	51.62 °F	433.36 µS/cm	0.25 mg/L	26.20 NTU	-155.9 mV	5.05 ft	150.00 ml/min
3/21/2019 11:18 AM	12:00	6.75 pH	51.46 °F	434.83 µS/cm	0.24 mg/L	52.75 NTU	-156.2 mV	5.05 ft	150.00 ml/min
3/21/2019 11:21 AM	15:00	6.75 pH	51.26 °F	442.38 µS/cm	0.31 mg/L	62.50 NTU	-154.5 mV	5.05 ft	150.00 ml/min
3/21/2019 11:24 AM	18:00	6.76 pH	51.13 °F	447.15 µS/cm	0.36 mg/L	67.67 NTU	-152.8 mV	5.05 ft	150.00 ml/min
3/21/2019 11:27 AM	21:00	6.76 pH	51.07 °F	447.64 µS/cm	0.41 mg/L	89.93 NTU	-151.6 mV	5.05 ft	150.00 ml/min
3/21/2019 11:30 AM	24:00	6.76 pH	51.08 °F	433.31 µS/cm	0.45 mg/L	83.70 NTU	-151.8 mV	5.05 ft	150.00 ml/min
3/21/2019 11:33 AM	27:00	6.76 pH	51.09 °F	429.34 µS/cm	0.45 mg/L	91.11 NTU	-150.9 mV	5.05 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-143	Final DTW: 5.70 Sample Time: 1145

Low-Flow Test Report:

Test Date / Time: 3/21/2019 11:25:19 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

<p>Location Name: MW-8R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.3 ft</p>	<p>Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 6000 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.02 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689</p>
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 11:25 AM	00:00	6.83 pH	49.26 °F	338.41 µS/cm	1.06 mg/L	0.00 NTU	153.8 mV	8.30 ft	200.00 ml/min
3/21/2019 11:28 AM	03:00	6.85 pH	48.96 °F	337.43 µS/cm	0.53 mg/L	0.00 NTU	153.9 mV	8.30 ft	200.00 ml/min
3/21/2019 11:31 AM	06:00	6.85 pH	48.82 °F	337.71 µS/cm	0.56 mg/L	0.00 NTU	154.6 mV	8.30 ft	200.00 ml/min
3/21/2019 11:34 AM	09:00	6.84 pH	48.90 °F	337.90 µS/cm	0.60 mg/L	0.00 NTU	155.4 mV	8.30 ft	200.00 ml/min
3/21/2019 11:37 AM	12:00	6.84 pH	48.91 °F	338.26 µS/cm	0.84 mg/L	0.00 NTU	155.7 mV	8.30 ft	200.00 ml/min
3/21/2019 11:40 AM	15:00	6.85 pH	48.80 °F	338.43 µS/cm	0.98 mg/L	0.00 NTU	155.9 mV	8.30 ft	200.00 ml/min
3/21/2019 11:43 AM	18:00	6.85 pH	48.88 °F	337.87 µS/cm	0.73 mg/L	0.00 NTU	155.7 mV	8.30 ft	200.00 ml/min
3/21/2019 11:46 AM	21:00	6.84 pH	48.80 °F	338.29 µS/cm	0.78 mg/L	0.00 NTU	156.0 mV	8.30 ft	200.00 ml/min
3/21/2019 11:49 AM	24:00	6.85 pH	48.72 °F	338.20 µS/cm	0.92 mg/L	0.00 NTU	156.0 mV	8.30 ft	200.00 ml/min
3/21/2019 11:52 AM	27:00	6.85 pH	48.75 °F	338.48 µS/cm	0.92 mg/L	0.00 NTU	156.0 mV	8.30 ft	200.00 ml/min
3/21/2019 11:55 AM	30:00	6.85 pH	48.79 °F	337.76 µS/cm	0.90 mg/L	0.00 NTU	156.0 mV	8.30 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-8R	Sample time 1100 Final DTW 8.32 ft btoc

Low-Flow Test Report:

Test Date / Time: 3/21/2019 11:45:00 AM

Project: 1q19 edmonds terminal (9)

Operator Name: Jason little

<p>Location Name: MW-126 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3.7 ft Total Depth: 14.2 ft Initial Depth to Water: 4.95 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 11:45 AM	00:00	7.08 pH	54.98 °F	503.64 µS/cm	9.17 mg/L	68.49 NTU	66.7 mV	4.95 ft	150.00 ml/min
3/21/2019 11:48 AM	03:00	7.03 pH	49.75 °F	504.43 µS/cm	8.18 mg/L	62.62 NTU	69.0 mV	4.95 ft	150.00 ml/min
3/21/2019 11:51 AM	06:00	7.03 pH	48.49 °F	508.43 µS/cm	8.33 mg/L	13.67 NTU	71.8 mV	4.95 ft	150.00 ml/min
3/21/2019 11:54 AM	09:00	7.02 pH	48.11 °F	511.95 µS/cm	8.40 mg/L	6.70 NTU	76.2 mV	4.95 ft	150.00 ml/min
3/21/2019 11:57 AM	12:00	7.02 pH	47.78 °F	512.99 µS/cm	8.36 mg/L	4.50 NTU	79.9 mV	4.95 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-126	Sample time-1120 ldtw-4.95 fdtw-5.96

Low-Flow Test Report:

Test Date / Time: 3/21/2019 12:33:06 PM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-522 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.3 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.09 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 12:33 PM	00:00	6.94 pH	51.21 °F	482.33 µS/cm	3.45 mg/L	26.77 NTU	37.5 mV	8.30 ft	200.00 ml/min
3/21/2019 12:36 PM	03:00	6.95 pH	51.55 °F	484.51 µS/cm	1.82 mg/L	1.88 NTU	48.5 mV	8.30 ft	200.00 ml/min
3/21/2019 12:39 PM	06:00	6.94 pH	52.40 °F	485.09 µS/cm	1.81 mg/L	1.58 NTU	46.0 mV	8.30 ft	200.00 ml/min
3/21/2019 12:42 PM	09:00	6.93 pH	53.17 °F	476.90 µS/cm	2.01 mg/L	1.46 NTU	45.9 mV	8.30 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-522	Sample time 1155 Final DTW 8.38 fbtoc

Low-Flow Test Report:

Test Date / Time: 3/21/2019 12:53:18 PM

Project: 1q19 edmonds terminal (10)

Operator Name: Jason little

Location Name: MW-519 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.05 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/21/2019 12:53 PM	00:00	7.01 pH	52.79 °F	411.70 µS/cm	1.70 mg/L	4.48 NTU	119.8 mV	7.05 ft	150.00 ml/min
3/21/2019 12:56 PM	03:00	6.98 pH	50.69 °F	418.47 µS/cm	0.31 mg/L	2.97 NTU	119.5 mV	7.05 ft	150.00 ml/min
3/21/2019 12:59 PM	06:00	7.02 pH	50.37 °F	421.79 µS/cm	0.23 mg/L	0.52 NTU	115.5 mV	7.05 ft	150.00 ml/min
3/21/2019 1:02 PM	09:00	7.03 pH	49.97 °F	422.03 µS/cm	0.29 mg/L	0.66 NTU	113.8 mV	7.05 ft	150.00 ml/min
3/21/2019 1:05 PM	12:00	7.01 pH	49.78 °F	422.25 µS/cm	0.34 mg/L	0.02 NTU	114.4 mV	7.05 ft	150.00 ml/min
3/21/2019 1:08 PM	15:00	7.02 pH	49.58 °F	422.79 µS/cm	0.44 mg/L	0.00 NTU	113.1 mV	7.05 ft	150.00 ml/min
3/21/2019 1:11 PM	18:00	7.04 pH	49.61 °F	422.82 µS/cm	0.44 mg/L	0.04 NTU	111.6 mV	7.05 ft	150.00 ml/min
3/21/2019 1:14 PM	21:00	7.01 pH	49.51 °F	423.35 µS/cm	0.50 mg/L	0.03 NTU	112.9 mV	7.05 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-519	Sample time-1230 ldtw-7.05 Fdtw-7.06
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/22/2019 9:33:55 AM

Project: 1q19 edmonds terminal (11)

Operator Name: Jason little

Location Name: MW-521 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.6 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/22/2019 9:33 AM	00:00	6.90 pH	48.86 °F	345.98 µS/cm	7.68 mg/L	3.85 NTU	310.8 mV	6.60 ft	150.00 ml/min
3/22/2019 9:36 AM	03:00	6.93 pH	48.11 °F	349.17 µS/cm	0.26 mg/L	272.27 NTU	308.8 mV	6.60 ft	150.00 ml/min
3/22/2019 9:39 AM	06:00	6.98 pH	47.97 °F	349.58 µS/cm	0.20 mg/L	947.05 NTU	306.4 mV	6.60 ft	150.00 ml/min
3/22/2019 9:42 AM	09:00	6.97 pH	47.93 °F	348.82 µS/cm	0.15 mg/L	996.39 NTU	306.7 mV	6.60 ft	150.00 ml/min
3/22/2019 9:45 AM	12:00	6.96 pH	47.93 °F	349.55 µS/cm	0.13 mg/L	1,277.5 NTU	307.4 mV	6.60 ft	150.00 ml/min
3/22/2019 9:48 AM	15:00	6.96 pH	47.99 °F	349.37 µS/cm	0.13 mg/L	1,408.4 NTU	307.2 mV	6.60 ft	150.00 ml/min
3/22/2019 9:51 AM	18:00	6.96 pH	47.97 °F	349.53 µS/cm	0.17 mg/L	1,262.2 NTU	307.2 mV	6.60 ft	150.00 ml/min
3/22/2019 9:54 AM	21:00	6.96 pH	47.99 °F	349.62 µS/cm	0.18 mg/L	1,564.4 NTU	307.2 mV	6.60 ft	150.00 ml/min
3/22/2019 9:57 AM	24:00	6.95 pH	48.08 °F	349.33 µS/cm	0.19 mg/L	1,636.5 NTU	307.0 mV	6.60 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-521	Sample time-0900 ldtw-6.60 Fdtw-6.60
Dup-4	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 3/22/2019 9:37:19 AM

Project: 1Q19 Edmonds Terminal

Operator Name: EK

Location Name: MW-520 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.7 ft	Pump Type: Geotech geopump Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 6000 ml Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466689
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Test Notes:

Weather Conditions:

50 and sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/22/2019 9:37 AM	00:00	7.08 pH	47.77 °F	658.39 µS/cm	2.98 mg/L	0.00 NTU	153.5 mV	7.70 ft	200.00 ml/min
3/22/2019 9:40 AM	03:00	7.04 pH	47.78 °F	654.86 µS/cm	2.18 mg/L	0.00 NTU	159.8 mV	7.70 ft	200.00 ml/min
3/22/2019 9:43 AM	06:00	7.04 pH	47.73 °F	638.04 µS/cm	2.09 mg/L	0.00 NTU	160.4 mV	7.70 ft	200.00 ml/min
3/22/2019 9:46 AM	09:00	7.04 pH	47.74 °F	609.53 µS/cm	1.96 mg/L	0.00 NTU	160.4 mV	7.70 ft	200.00 ml/min
3/22/2019 9:49 AM	12:00	7.03 pH	47.74 °F	583.27 µS/cm	1.76 mg/L	0.00 NTU	160.0 mV	7.70 ft	200.00 ml/min
3/22/2019 9:52 AM	15:00	7.03 pH	47.76 °F	560.45 µS/cm	1.55 mg/L	0.00 NTU	159.7 mV	7.70 ft	200.00 ml/min
3/22/2019 9:55 AM	18:00	7.03 pH	47.79 °F	524.09 µS/cm	1.37 mg/L	0.00 NTU	159.1 mV	7.70 ft	200.00 ml/min
3/22/2019 9:58 AM	21:00	7.03 pH	47.83 °F	516.14 µS/cm	1.20 mg/L	0.00 NTU	158.2 mV	7.70 ft	200.00 ml/min
3/22/2019 10:01 AM	24:00	7.03 pH	47.81 °F	502.17 µS/cm	1.10 mg/L	0.00 NTU	157.3 mV	7.70 ft	200.00 ml/min
3/22/2019 10:04 AM	27:00	7.03 pH	47.84 °F	484.08 µS/cm	1.00 mg/L	0.00 NTU	156.2 mV	7.70 ft	200.00 ml/min
3/22/2019 10:07 AM	30:00	7.02 pH	47.88 °F	474.11 µS/cm	0.97 mg/L	0.00 NTU	155.5 mV	7.70 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-520	Sample time 0910 Final DTW 7.70 ft btoc

Low-Flow Test Report:

Test Date / Time: 6/17/2019 1:44:00 PM

Project: Edmonds Terminal

Operator Name: KZ

<p>Location Name: MW-515 Well Diameter: 3 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.06 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Sampled on 6-17-2019 at 1435.

Weather Conditions:

Sunny, 65 degrees

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/17/2019 1:44 PM	00:00	6.49 pH	68.06 °F	22,985 µS/cm	1.02 mg/L	16.97 NTU	92.7 mV	5.06 ft	150.00 ml/min
6/17/2019 1:47 PM	03:00	6.50 pH	63.29 °F	22,085 µS/cm	0.48 mg/L	11.38 NTU	93.5 mV	5.06 ft	150.00 ml/min
6/17/2019 1:50 PM	06:00	6.51 pH	62.69 °F	21,673 µS/cm	0.32 mg/L	6.52 NTU	98.2 mV	5.06 ft	150.00 ml/min
6/17/2019 1:53 PM	09:00	6.51 pH	62.17 °F	21,201 µS/cm	0.23 mg/L	3.74 NTU	102.2 mV	5.06 ft	150.00 ml/min
6/17/2019 1:56 PM	12:00	6.49 pH	61.81 °F	21,012 µS/cm	0.19 mg/L	2.78 NTU	104.7 mV	5.06 ft	150.00 ml/min
6/17/2019 1:59 PM	15:00	6.49 pH	61.39 °F	20,898 µS/cm	0.15 mg/L	1.42 NTU	106.2 mV	5.06 ft	150.00 ml/min
6/17/2019 2:02 PM	18:00	6.50 pH	61.34 °F	20,775 µS/cm	0.14 mg/L	1.25 NTU	107.3 mV	5.06 ft	150.00 ml/min
6/17/2019 2:05 PM	21:00	6.50 pH	61.26 °F	20,780 µS/cm	0.13 mg/L	1.02 NTU	108.3 mV	5.06 ft	150.00 ml/min
6/17/2019 2:08 PM	24:00	6.51 pH	61.18 °F	20,827 µS/cm	0.12 mg/L	1.21 NTU	109.0 mV	5.06 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-515

Sample Time: 1435

Ferrous Iron: 0.5

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/17/2019 2:29:46 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

<p>Location Name: MW-517 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.43 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9.25 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 614031</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/17/2019 2:29 PM	00:00	6.41 pH	64.49 °F	13,124 µS/cm	4.38 mg/L	13.03 NTU	178.0 mV	5.43 ft	150.00 ml/min
6/17/2019 2:32 PM	03:00	6.43 pH	66.15 °F	13,904 µS/cm	1.03 mg/L	8.52 NTU	143.3 mV	5.43 ft	150.00 ml/min
6/17/2019 2:35 PM	06:00	6.42 pH	62.31 °F	10,570 µS/cm	0.69 mg/L	4.21 NTU	130.3 mV	5.43 ft	150.00 ml/min
6/17/2019 2:38 PM	09:00	6.43 pH	62.22 °F	8,534.4 µS/cm	0.62 mg/L	4.62 NTU	125.6 mV	5.43 ft	150.00 ml/min
6/17/2019 2:41 PM	12:00	6.47 pH	62.16 °F	6,834.0 µS/cm	0.73 mg/L	5.17 NTU	36.4 mV	5.43 ft	150.00 ml/min
6/17/2019 2:44 PM	15:00	6.51 pH	62.10 °F	6,301.5 µS/cm	0.87 mg/L	5.93 NTU	-123.9 mV	5.43 ft	150.00 ml/min
6/17/2019 2:47 PM	18:00	6.53 pH	62.18 °F	6,031.7 µS/cm	0.69 mg/L	5.46 NTU	-154.8 mV	5.43 ft	150.00 ml/min
6/17/2019 2:50 PM	21:00	6.55 pH	62.16 °F	5,902.7 µS/cm	0.65 mg/L	6.43 NTU	-145.9 mV	5.43 ft	150.00 ml/min
6/17/2019 2:53 PM	24:00	6.57 pH	62.02 °F	6,424.2 µS/cm	0.81 mg/L	79.79 NTU	-153.2 mV	5.43 ft	150.00 ml/min
6/17/2019 2:56 PM	27:00	6.56 pH	62.05 °F	6,343.2 µS/cm	0.86 mg/L	76.34 NTU	-159.8 mV	5.43 ft	150.00 ml/min
6/17/2019 2:59 PM	30:00	6.58 pH	61.92 °F	6,339.6 µS/cm	1.62 mg/L	1.15 NTU	-148.8 mV	5.43 ft	150.00 ml/min
6/17/2019 3:02 PM	33:00	6.62 pH	62.10 °F	4,462.9 µS/cm	1.22 mg/L	1.33 NTU	-136.3 mV	5.43 ft	150.00 ml/min

6/17/2019 3:05 PM	36:00	6.58 pH	62.06 °F	4,411.9 µS/cm	1.03 mg/L	392.71 NTU	-149.0 mV	5.43 ft	150.00 ml/min
6/17/2019 3:08 PM	39:00	6.59 pH	62.00 °F	4,351.6 µS/cm	2.63 mg/L	10,088 NTU	-133.0 mV	5.43 ft	150.00 ml/min
6/17/2019 3:11 PM	42:00	6.58 pH	61.83 °F	6,646.3 µS/cm	1.10 mg/L	1.14 NTU	-140.7 mV	5.43 ft	150.00 ml/min
6/17/2019 3:14 PM	45:00	6.59 pH	61.86 °F	6,648.5 µS/cm	1.01 mg/L	1.17 NTU	-128.0 mV	5.43 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-517	Final DTW: 5.44 Sample Time: 1420 Iron: 1.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/17/2019 2:35:14 PM

Project: Edmonds Terminal 2Q19

Operator Name: RL

<p>Location Name: MW-513 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.55 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Estimated Total Volume Pumped: 7200 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

ORP and Turbidity did not stabilize

Iron 0.5 mg/l

Final DTW 4.55 ft

RDO 1.21

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/17/2019 2:35 PM	00:00	6.68 pH	61.98 °F	12,758 µS/cm	2.27 mg/L	7.44 NTU	-90.1 mV	4.55 ft	150.00 ml/min
6/17/2019 2:38 PM	03:00	6.67 pH	58.83 °F	13,488 µS/cm	0.52 mg/L	6.62 NTU	-82.5 mV	4.55 ft	150.00 ml/min
6/17/2019 2:41 PM	06:00	6.65 pH	58.90 °F	13,838 µS/cm	0.48 mg/L	34.60 NTU	-70.6 mV	4.55 ft	150.00 ml/min
6/17/2019 2:44 PM	09:00	6.64 pH	58.74 °F	14,235 µS/cm	0.45 mg/L	42.88 NTU	-68.9 mV	4.55 ft	150.00 ml/min
6/17/2019 2:47 PM	12:00	6.67 pH	58.63 °F	14,403 µS/cm	0.35 mg/L	38.35 NTU	-76.4 mV	4.55 ft	150.00 ml/min
6/17/2019 2:50 PM	15:00	6.72 pH	58.50 °F	14,234 µS/cm	0.36 mg/L	40.28 NTU	-79.2 mV	4.55 ft	150.00 ml/min
6/17/2019 2:53 PM	18:00	6.74 pH	59.44 °F	12,302 µS/cm	0.60 mg/L	51.95 NTU	-72.1 mV	4.55 ft	150.00 ml/min
6/17/2019 2:56 PM	21:00	6.76 pH	59.25 °F	10,985 µS/cm	0.77 mg/L	44.64 NTU	-61.8 mV	4.55 ft	150.00 ml/min
6/17/2019 2:59 PM	24:00	6.77 pH	59.34 °F	10,479 µS/cm	0.85 mg/L	39.92 NTU	-54.3 mV	4.55 ft	150.00 ml/min
6/17/2019 3:02 PM	27:00	6.76 pH	59.30 °F	10,284 µS/cm	0.90 mg/L	51.60 NTU	-49.0 mV	4.55 ft	150.00 ml/min
6/17/2019 3:05 PM	30:00	6.76 pH	59.34 °F	10,259 µS/cm	0.95 mg/L	55.88 NTU	-44.8 mV	4.55 ft	150.00 ml/min

6/17/2019 3:08 PM	33:00	6.75 pH	59.30 °F	10,201 µS/cm	1.01 mg/L	51.84 NTU	-40.5 mV	4.55 ft	150.00 ml/min
6/17/2019 3:11 PM	36:00	6.74 pH	59.29 °F	10,114 µS/cm	1.07 mg/L	52.95 NTU	-36.6 mV	4.55 ft	150.00 ml/min
6/17/2019 3:14 PM	39:00	6.73 pH	59.28 °F	10,104 µS/cm	1.12 mg/L	44.94 NTU	-33.9 mV	4.55 ft	150.00 ml/min
6/17/2019 3:17 PM	42:00	6.73 pH	59.27 °F	10,067 µS/cm	1.17 mg/L	51.71 NTU	-31.3 mV	4.55 ft	150.00 ml/min
6/17/2019 3:20 PM	45:00	6.73 pH	59.32 °F	10,071 µS/cm	1.21 mg/L	36.87 NTU	-29.2 mV	4.55 ft	150.00 ml/min
6/17/2019 3:23 PM	48:00	6.73 pH	59.69 °F	10,096 µS/cm	1.20 mg/L	38.07 NTU	-28.2 mV	4.55 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-513	

Low-Flow Test Report:

Test Date / Time: 6/17/2019 2:35:14 PM

Project: Edmonds Terminal 2Q19

Operator Name: RL

<p>Location Name: MW-513 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.55 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Estimated Total Volume Pumped: 7200 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

ORP and Turbidity did not stabilize

Iron 0.5 mg/l

Final DTW 4.55 ft

RDO 1.21

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/17/2019 2:35 PM	00:00	6.68 pH	61.98 °F	12,758 µS/cm	2.27 mg/L	7.44 NTU	-90.1 mV	4.55 ft	150.00 ml/min
6/17/2019 2:38 PM	03:00	6.67 pH	58.83 °F	13,488 µS/cm	0.52 mg/L	6.62 NTU	-82.5 mV	4.55 ft	150.00 ml/min
6/17/2019 2:41 PM	06:00	6.65 pH	58.90 °F	13,838 µS/cm	0.48 mg/L	34.60 NTU	-70.6 mV	4.55 ft	150.00 ml/min
6/17/2019 2:44 PM	09:00	6.64 pH	58.74 °F	14,235 µS/cm	0.45 mg/L	42.88 NTU	-68.9 mV	4.55 ft	150.00 ml/min
6/17/2019 2:47 PM	12:00	6.67 pH	58.63 °F	14,403 µS/cm	0.35 mg/L	38.35 NTU	-76.4 mV	4.55 ft	150.00 ml/min
6/17/2019 2:50 PM	15:00	6.72 pH	58.50 °F	14,234 µS/cm	0.36 mg/L	40.28 NTU	-79.2 mV	4.55 ft	150.00 ml/min
6/17/2019 2:53 PM	18:00	6.74 pH	59.44 °F	12,302 µS/cm	0.60 mg/L	51.95 NTU	-72.1 mV	4.55 ft	150.00 ml/min
6/17/2019 2:56 PM	21:00	6.76 pH	59.25 °F	10,985 µS/cm	0.77 mg/L	44.64 NTU	-61.8 mV	4.55 ft	150.00 ml/min
6/17/2019 2:59 PM	24:00	6.77 pH	59.34 °F	10,479 µS/cm	0.85 mg/L	39.92 NTU	-54.3 mV	4.55 ft	150.00 ml/min
6/17/2019 3:02 PM	27:00	6.76 pH	59.30 °F	10,284 µS/cm	0.90 mg/L	51.60 NTU	-49.0 mV	4.55 ft	150.00 ml/min
6/17/2019 3:05 PM	30:00	6.76 pH	59.34 °F	10,259 µS/cm	0.95 mg/L	55.88 NTU	-44.8 mV	4.55 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-518	Final DTW: 8.52 Sample Time: 1000 Iron: 1.5 mg/L

Low-Flow Test Report:

Test Date / Time: 6/18/2019 10:42:31 AM

Project: Edmonds Terminal 2Q19

Operator Name: KZ

Location Name: MW-502 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.62 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Estimated Total Volume Pumped: 25340 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Serial Number: 663632
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Test Notes:

Weather Conditions:

65, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/18/2019 10:42 AM	00:00	6.64 pH	56.63 °F	245.20 µS/cm	4.00 mg/L	59.79 NTU	75.9 mV	5.62 ft	150.00 ml/min
6/18/2019 10:45 AM	03:00	6.48 pH	55.67 °F	237.35 µS/cm	0.61 mg/L	7.06 NTU	52.1 mV	5.62 ft	150.00 ml/min
6/18/2019 10:48 AM	06:00	6.46 pH	55.27 °F	236.65 µS/cm	0.47 mg/L	4.88 NTU	46.3 mV	5.62 ft	150.00 ml/min
6/18/2019 10:51 AM	09:00	6.45 pH	55.05 °F	237.20 µS/cm	0.42 mg/L	3.49 NTU	44.5 mV	5.62 ft	150.00 ml/min
6/18/2019 10:54 AM	12:00	6.43 pH	54.81 °F	235.33 µS/cm	0.40 mg/L	0.00 NTU	44.3 mV	5.62 ft	150.00 ml/min
6/18/2019 10:57 AM	15:00	6.41 pH	54.78 °F	233.46 µS/cm	0.38 mg/L	0.00 NTU	44.3 mV	5.62 ft	150.00 ml/min
6/18/2019 11:45 AM	01:02:36	6.93 pH	60.70 °F	0.07 µS/cm	9.41 mg/L	0.00 NTU	99.8 mV	5.62 ft	150.00 ml/min
6/18/2019 1:19 PM	02:36:40	6.97 pH	62.75 °F	0.06 µS/cm	9.17 mg/L	0.00 NTU	-6.8 mV	5.62 ft	150.00 ml/min
6/18/2019 1:31 PM	02:48:56	6.87 pH	64.20 °F	0.06 µS/cm	9.04 mg/L	0.00 NTU	32.0 mV	5.62 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-502

Sample Time: 1010

Ferrous Iron: 2.0

Did not press complete on low flow test at appropriate time. Last stabilized reading at approximately 1000.

Low-Flow Test Report:

Test Date / Time: 6/18/2019 11:39:16 AM

Project: Edmonds Terminal 2Q19

Operator Name: KF

<p>Location Name: MW-514 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.8 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/18/2019 11:39 AM	00:00	6.49 pH	59.23 °F	4,942.6 µS/cm	2.56 mg/L	42.55 NTU	96.9 mV	4.80 ft	150.00 ml/min
6/18/2019 11:42 AM	03:00	6.49 pH	58.68 °F	4,588.7 µS/cm	1.03 mg/L	520.99 NTU	78.7 mV	4.80 ft	150.00 ml/min
6/18/2019 11:45 AM	06:00	6.51 pH	58.66 °F	4,604.0 µS/cm	0.38 mg/L	566.12 NTU	68.0 mV	4.80 ft	150.00 ml/min
6/18/2019 11:48 AM	09:00	6.53 pH	58.73 °F	4,634.9 µS/cm	0.22 mg/L	578.93 NTU	59.9 mV	4.80 ft	150.00 ml/min
6/18/2019 11:51 AM	12:00	6.54 pH	58.82 °F	4,696.8 µS/cm	0.24 mg/L	831.81 NTU	55.3 mV	4.80 ft	150.00 ml/min
6/18/2019 11:54 AM	15:00	6.54 pH	58.86 °F	4,647.5 µS/cm	0.43 mg/L	110.22 NTU	51.3 mV	4.80 ft	150.00 ml/min
6/18/2019 11:57 AM	18:00	6.55 pH	58.95 °F	4,732.1 µS/cm	2.09 mg/L	163.77 NTU	48.4 mV	4.80 ft	150.00 ml/min
6/18/2019 12:00 PM	21:00	6.56 pH	59.03 °F	4,663.4 µS/cm	2.48 mg/L	884.94 NTU	44.4 mV	4.80 ft	150.00 ml/min
6/18/2019 12:03 PM	24:00	6.58 pH	59.07 °F	4,675.3 µS/cm	2.72 mg/L	35.77 NTU	41.5 mV	4.80 ft	150.00 ml/min
6/18/2019 12:06 PM	27:00	6.59 pH	59.20 °F	4,697.9 µS/cm	2.80 mg/L	265.81 NTU	40.9 mV	4.80 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-514	Final DTW: 4.80 Sample Time: 1110 Iron: 6.5 mg/L

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/18/2019 12:16:38 PM

Project: Edmonds Terminal 2Q19

Operator Name: KZ

<p>Location Name: MW-503 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.35 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 10085 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

Weather Conditions:

65, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/18/2019 12:16 PM	00:00	6.53 pH	57.63 °F	435.69 µS/cm	1.97 mg/L	6.39 NTU	45.4 mV	5.35 ft	150.00 ml/min
6/18/2019 12:19 PM	03:00	6.52 pH	57.28 °F	437.93 µS/cm	1.10 mg/L	21.03 NTU	27.3 mV	5.35 ft	150.00 ml/min
6/18/2019 12:22 PM	06:00	6.51 pH	57.11 °F	437.91 µS/cm	0.81 mg/L	0.00 NTU	23.3 mV	5.35 ft	150.00 ml/min
6/18/2019 12:25 PM	09:00	6.50 pH	57.10 °F	438.67 µS/cm	0.64 mg/L	0.00 NTU	20.1 mV	5.35 ft	150.00 ml/min
6/18/2019 12:28 PM	12:00	6.48 pH	57.08 °F	438.40 µS/cm	0.53 mg/L	0.00 NTU	17.6 mV	5.35 ft	150.00 ml/min
6/18/2019 12:31 PM	15:00	6.48 pH	57.15 °F	437.44 µS/cm	0.46 mg/L	0.00 NTU	15.2 mV	5.35 ft	150.00 ml/min
6/18/2019 12:34 PM	18:00	6.48 pH	57.25 °F	437.58 µS/cm	0.43 mg/L	0.00 NTU	13.4 mV	5.35 ft	150.00 ml/min
6/18/2019 12:37 PM	21:00	6.48 pH	57.37 °F	438.27 µS/cm	0.41 mg/L	0.00 NTU	11.3 mV	5.35 ft	150.00 ml/min
6/18/2019 12:40 PM	24:00	6.48 pH	57.43 °F	438.03 µS/cm	0.39 mg/L	0.00 NTU	9.2 mV	5.35 ft	150.00 ml/min
6/18/2019 12:43 PM	27:00	6.48 pH	57.45 °F	436.48 µS/cm	0.38 mg/L	0.00 NTU	7.1 mV	5.35 ft	150.00 ml/min
6/18/2019 12:46 PM	30:00	6.48 pH	57.47 °F	437.91 µS/cm	0.37 mg/L	0.00 NTU	4.9 mV	5.35 ft	150.00 ml/min
6/18/2019 12:49 PM	33:00	6.49 pH	57.61 °F	439.01 µS/cm	0.36 mg/L	0.00 NTU	3.0 mV	5.35 ft	150.00 ml/min

6/18/2019 12:52 PM	36:00	6.49 pH	57.68 °F	437.79 µS/cm	0.36 mg/L	0.00 NTU	1.1 mV	5.35 ft	150.00 ml/min
6/18/2019 12:55 PM	39:00	6.49 pH	57.66 °F	438.16 µS/cm	0.36 mg/L	0.00 NTU	-0.4 mV	5.35 ft	150.00 ml/min
6/18/2019 12:58 PM	42:00	6.49 pH	57.71 °F	439.04 µS/cm	0.36 mg/L	0.00 NTU	-2.3 mV	5.35 ft	150.00 ml/min
6/18/2019 1:01 PM	45:00	6.50 pH	57.96 °F	437.82 µS/cm	0.36 mg/L	0.00 NTU	-4.0 mV	5.35 ft	150.00 ml/min
6/18/2019 1:19 PM	01:02:54	6.96 pH	62.81 °F	0.06 µS/cm	9.15 mg/L	0.00 NTU	-5.6 mV	5.35 ft	150.00 ml/min
6/18/2019 1:23 PM	01:07:14	6.92 pH	63.47 °F	0.06 µS/cm	9.10 mg/L	0.00 NTU	8.8 mV	5.35 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-503	Sample time: 1210 Final DTW: 5.32 fbtoc Ferrous Iron: 5.0 ORP did not stabilize after 45 minutes

Low-Flow Test Report:

Test Date / Time: 6/18/2019 12:33:47 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

<p>Location Name: MW-512 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.64 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Did not stabilize

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/18/2019 12:33 PM	00:00	6.81 pH	61.54 °F	6,869.3 µS/cm	3.84 mg/L	43.78 NTU	26.6 mV	6.64 ft	150.00 ml/min
6/18/2019 12:36 PM	03:00	6.89 pH	61.13 °F	5,184.4 µS/cm	2.34 mg/L	3,411.5 NTU	-17.2 mV	6.64 ft	150.00 ml/min
6/18/2019 12:39 PM	06:00	6.84 pH	61.13 °F	4,032.4 µS/cm	3.07 mg/L	52.42 NTU	-17.7 mV	6.64 ft	150.00 ml/min
6/18/2019 12:42 PM	09:00	6.80 pH	61.14 °F	3,630.2 µS/cm	0.36 mg/L	593.12 NTU	-15.2 mV	6.64 ft	150.00 ml/min
6/18/2019 12:45 PM	12:00	6.78 pH	61.15 °F	3,621.5 µS/cm	0.33 mg/L	566.13 NTU	-11.9 mV	6.64 ft	150.00 ml/min
6/18/2019 12:48 PM	15:00	6.76 pH	61.14 °F	3,592.3 µS/cm	0.31 mg/L	881.27 NTU	-9.2 mV	6.64 ft	150.00 ml/min
6/18/2019 12:51 PM	18:00	6.75 pH	61.11 °F	3,558.1 µS/cm	0.26 mg/L	1,223.6 NTU	-6.6 mV	6.64 ft	150.00 ml/min
6/18/2019 12:54 PM	21:00	6.73 pH	61.15 °F	3,616.4 µS/cm	0.22 mg/L	1,225.3 NTU	-4.6 mV	6.64 ft	150.00 ml/min
6/18/2019 12:57 PM	24:00	6.73 pH	61.09 °F	3,458.2 µS/cm	0.21 mg/L	1,253.7 NTU	-2.9 mV	6.64 ft	150.00 ml/min
6/18/2019 1:00 PM	27:00	6.73 pH	61.15 °F	3,471.8 µS/cm	0.18 mg/L	1,302.5 NTU	-1.8 mV	6.64 ft	150.00 ml/min
6/18/2019 1:03 PM	30:00	6.71 pH	61.12 °F	3,620.4 µS/cm	0.20 mg/L	1,311.8 NTU	0.4 mV	6.64 ft	150.00 ml/min
6/18/2019 1:06 PM	33:00	6.73 pH	61.21 °F	3,288.9 µS/cm	0.60 mg/L	1,348.1 NTU	0.1 mV	6.64 ft	150.00 ml/min

6/18/2019 1:09 PM	36:00	6.72 pH	61.15 °F	3,339.9 µS/cm	0.67 mg/L	1,359.8 NTU	1.2 mV	6.64 ft	150.00 ml/min
6/18/2019 1:12 PM	39:00	6.70 pH	61.14 °F	3,603.5 µS/cm	0.65 mg/L	1,398.3 NTU	2.6 mV	6.64 ft	150.00 ml/min
6/18/2019 1:15 PM	42:00	6.71 pH	61.17 °F	3,599.5 µS/cm	0.96 mg/L	1,419.7 NTU	2.5 mV	6.64 ft	150.00 ml/min
6/18/2019 1:18 PM	45:00	6.71 pH	61.14 °F	3,303.9 µS/cm	1.16 mg/L	1,458.0 NTU	1.5 mV	6.64 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-512	Final DTW: 6.64 Sample Time: 1230 Iron: 4.5 mg/L

Low-Flow Test Report:

Test Date / Time: 6/18/2019 1:37:18 PM

Project: Edmonds Terminal 2Q19

Operator Name: AP

<p>Location Name: MW-516 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.69 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 7612.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/18/2019 1:37 PM	00:00	6.24 pH	63.47 °F	10,028 µS/cm	2.55 mg/L	0.00 NTU	176.5 mV	4.69 ft	150.00 ml/min
6/18/2019 1:40 PM	03:00	6.25 pH	62.03 °F	10,275 µS/cm	0.39 mg/L	0.33 NTU	179.8 mV	4.69 ft	150.00 ml/min
6/18/2019 1:43 PM	06:00	6.25 pH	62.02 °F	10,308 µS/cm	0.26 mg/L	0.00 NTU	179.1 mV	4.69 ft	150.00 ml/min
6/18/2019 1:46 PM	09:00	6.25 pH	62.15 °F	10,226 µS/cm	0.25 mg/L	0.00 NTU	178.1 mV	4.69 ft	150.00 ml/min
6/18/2019 1:49 PM	12:00	6.26 pH	62.40 °F	8,345.5 µS/cm	0.19 mg/L	0.00 NTU	173.1 mV	4.69 ft	150.00 ml/min
6/18/2019 1:52 PM	15:00	6.32 pH	62.65 °F	5,976.2 µS/cm	0.23 mg/L	0.00 NTU	163.8 mV	4.69 ft	150.00 ml/min
6/18/2019 1:55 PM	18:00	6.36 pH	62.79 °F	4,952.0 µS/cm	0.27 mg/L	0.00 NTU	157.8 mV	4.69 ft	150.00 ml/min
6/18/2019 1:58 PM	21:00	6.36 pH	62.85 °F	4,749.7 µS/cm	0.34 mg/L	0.00 NTU	154.5 mV	4.69 ft	150.00 ml/min
6/18/2019 2:01 PM	24:00	6.36 pH	62.92 °F	4,670.0 µS/cm	0.33 mg/L	0.00 NTU	152.1 mV	4.69 ft	150.00 ml/min
6/18/2019 2:04 PM	27:00	6.36 pH	62.96 °F	4,675.6 µS/cm	0.36 mg/L	0.00 NTU	150.1 mV	4.69 ft	150.00 ml/min
6/18/2019 2:07 PM	30:00	6.36 pH	63.04 °F	4,661.7 µS/cm	0.37 mg/L	0.00 NTU	148.5 mV	4.69 ft	150.00 ml/min
6/18/2019 2:28 PM	50:45	6.89 pH	67.15 °F	2.01 µS/cm	9.29 mg/L	0.00 NTU	143.5 mV	4.69 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-516	Sample time: 1410 Final DTW: 4.70 ft btoc Final RDO: 0.37 mg/L Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/18/2019 1:43:00 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-511 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.33 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 12 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/18/2019 1:43 PM	00:00	7.25 pH	59.63 °F	354.55 µS/cm	6.22 mg/L	204.79 NTU	31.7 mV	8.33 ft	150.00 ml/min
6/18/2019 1:46 PM	03:00	6.80 pH	55.86 °F	308.69 µS/cm	2.27 mg/L	200.38 NTU	27.0 mV	8.33 ft	150.00 ml/min
6/18/2019 1:49 PM	06:00	6.76 pH	54.90 °F	308.86 µS/cm	2.24 mg/L	260.92 NTU	30.3 mV	8.33 ft	150.00 ml/min
6/18/2019 1:52 PM	09:00	6.74 pH	54.44 °F	306.98 µS/cm	2.42 mg/L	270.48 NTU	33.2 mV	8.33 ft	150.00 ml/min
6/18/2019 1:55 PM	12:00	6.73 pH	54.19 °F	303.97 µS/cm	2.80 mg/L	321.89 NTU	36.9 mV	8.33 ft	150.00 ml/min
6/18/2019 1:58 PM	15:00	6.71 pH	54.06 °F	299.78 µS/cm	3.47 mg/L	365.60 NTU	40.7 mV	8.33 ft	150.00 ml/min
6/18/2019 2:01 PM	18:00	6.70 pH	53.92 °F	309.56 µS/cm	3.82 mg/L	286.80 NTU	43.7 mV	8.33 ft	150.00 ml/min
6/18/2019 2:04 PM	21:00	6.70 pH	53.86 °F	307.21 µS/cm	3.98 mg/L	304.14 NTU	46.7 mV	8.33 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-511

Final DTW: 8.36
Sample Time: 1300
Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/18/2019 2:10:46 PM

Project: Edmonds Terminal 2Q19

Operator Name: KZ

<p>Location Name: MW-504 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.7 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.04 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/18/2019 2:10 PM	00:00	6.62 pH	60.82 °F	20,078 µS/cm	1.27 mg/L	8.38 NTU	36.8 mV	6.70 ft	150.00 ml/min
6/18/2019 2:13 PM	03:00	6.67 pH	60.40 °F	18,571 µS/cm	0.57 mg/L	9.81 NTU	11.0 mV	6.70 ft	150.00 ml/min
6/18/2019 2:16 PM	06:00	6.77 pH	60.30 °F	11,093 µS/cm	0.47 mg/L	7.99 NTU	-1.4 mV	6.70 ft	150.00 ml/min
6/18/2019 2:19 PM	09:00	6.80 pH	60.32 °F	9,137.6 µS/cm	0.46 mg/L	8.02 NTU	-0.6 mV	6.70 ft	150.00 ml/min
6/18/2019 2:22 PM	12:00	6.80 pH	60.24 °F	8,931.4 µS/cm	0.52 mg/L	7.85 NTU	0.6 mV	6.70 ft	150.00 ml/min
6/18/2019 2:25 PM	15:00	6.80 pH	60.00 °F	8,137.4 µS/cm	0.59 mg/L	8.36 NTU	0.4 mV	6.70 ft	150.00 ml/min
6/18/2019 2:28 PM	18:00	6.77 pH	59.96 °F	8,544.9 µS/cm	0.69 mg/L	9.20 NTU	2.2 mV	6.70 ft	150.00 ml/min
6/18/2019 2:31 PM	21:00	6.74 pH	60.00 °F	8,887.0 µS/cm	0.72 mg/L	9.43 NTU	5.9 mV	6.70 ft	150.00 ml/min
6/18/2019 2:34 PM	24:00	6.71 pH	60.52 °F	9,628.3 µS/cm	0.74 mg/L	10.11 NTU	8.6 mV	6.70 ft	150.00 ml/min
6/18/2019 2:37 PM	27:00	6.68 pH	60.50 °F	10,453 µS/cm	0.81 mg/L	10.59 NTU	10.4 mV	6.70 ft	150.00 ml/min
6/18/2019 2:40 PM	30:00	6.68 pH	60.54 °F	10,950 µS/cm	0.88 mg/L	11.13 NTU	11.1 mV	6.70 ft	150.00 ml/min
6/18/2019 2:43 PM	33:00	6.67 pH	60.68 °F	11,010 µS/cm	0.89 mg/L	11.47 NTU	12.3 mV	6.70 ft	150.00 ml/min

6/18/2019 2:46 PM	36:00	6.67 pH	60.64 °F	11,093 µS/cm	0.86 mg/L	12.27 NTU	13.5 mV	6.70 ft	150.00 ml/min
6/18/2019 2:49 PM	39:00	6.66 pH	60.82 °F	11,378 µS/cm	0.85 mg/L	12.89 NTU	14.9 mV	6.70 ft	150.00 ml/min
6/18/2019 2:52 PM	42:00	6.65 pH	60.74 °F	11,625 µS/cm	0.86 mg/L	12.73 NTU	16.3 mV	6.70 ft	150.00 ml/min
6/18/2019 2:55 PM	45:00	6.65 pH	60.68 °F	11,684 µS/cm	0.83 mg/L	12.68 NTU	17.3 mV	6.70 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-504	Sample Time: 1400 Final DTW: 6.74 Ferrous Iron: 2.5

Low-Flow Test Report:

Test Date / Time: 6/18/2019 2:32:41 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-139R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4.9 ft Total Depth: 14.9 ft Initial Depth to Water: 7.23 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 957.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/18/2019 2:32 PM	00:00	6.28 pH	59.77 °F	41,570 µS/cm	9.52 mg/L	51.83 NTU	140.2 mV	7.23 ft	150.00 ml/min
6/18/2019 2:33 PM	00:23	6.49 pH	59.12 °F	41,878 µS/cm	8.23 mg/L	175.11 NTU	148.9 mV	7.23 ft	150.00 ml/min
6/18/2019 2:36 PM	03:23	6.96 pH	58.87 °F	41,336 µS/cm	7.42 mg/L	44.67 NTU	157.0 mV	7.23 ft	150.00 ml/min
6/18/2019 2:39 PM	06:23	7.06 pH	59.19 °F	38,257 µS/cm	7.24 mg/L	72.12 NTU	153.8 mV	7.23 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-139R	Final DTW: 7.23 Sample Time: 1345 Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/19/2019 8:33:26 AM

Project: Edmonds Terminal

Operator Name: KZ

<p>Location Name: MW-505 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13.1 ft Initial Depth to Water: 4.76 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 7200 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.04 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

Weather Conditions:

60, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 8:33 AM	00:00	6.70 pH	58.27 °F	577.78 µS/cm	1.43 mg/L	18.23 NTU	25.7 mV	4.76 ft	150.00 ml/min
6/19/2019 8:36 AM	03:00	6.66 pH	58.07 °F	1,391.4 µS/cm	0.52 mg/L	12.04 NTU	-6.6 mV	4.76 ft	150.00 ml/min
6/19/2019 8:39 AM	06:00	6.61 pH	58.33 °F	3,108.3 µS/cm	0.42 mg/L	22.43 NTU	-10.4 mV	4.76 ft	150.00 ml/min
6/19/2019 8:42 AM	09:00	6.61 pH	58.51 °F	5,147.4 µS/cm	0.38 mg/L	11.33 NTU	-12.6 mV	4.76 ft	150.00 ml/min
6/19/2019 8:45 AM	12:00	6.60 pH	58.62 °F	7,023.0 µS/cm	0.36 mg/L	16.37 NTU	-15.4 mV	4.76 ft	150.00 ml/min
6/19/2019 8:48 AM	15:00	6.63 pH	58.67 °F	7,334.7 µS/cm	0.35 mg/L	13.51 NTU	-17.3 mV	4.76 ft	150.00 ml/min
6/19/2019 8:51 AM	18:00	6.62 pH	58.73 °F	8,304.5 µS/cm	0.36 mg/L	20.05 NTU	-20.7 mV	4.76 ft	150.00 ml/min
6/19/2019 8:54 AM	21:00	6.63 pH	58.85 °F	9,459.4 µS/cm	0.37 mg/L	11.70 NTU	-22.9 mV	4.76 ft	150.00 ml/min
6/19/2019 8:57 AM	24:00	6.63 pH	59.04 °F	10,100 µS/cm	0.34 mg/L	8.89 NTU	-24.4 mV	4.76 ft	150.00 ml/min
6/19/2019 9:00 AM	27:00	6.63 pH	59.11 °F	10,900 µS/cm	0.33 mg/L	5.21 NTU	-25.7 mV	4.76 ft	150.00 ml/min
6/19/2019 9:03 AM	30:00	6.65 pH	59.11 °F	10,563 µS/cm	0.32 mg/L	6.49 NTU	-26.7 mV	4.76 ft	150.00 ml/min
6/19/2019 9:06 AM	33:00	6.65 pH	59.23 °F	11,188 µS/cm	0.32 mg/L	6.47 NTU	-27.8 mV	4.76 ft	150.00 ml/min

6/19/2019 9:09 AM	36:00	6.65 pH	59.24 °F	11,369 µS/cm	0.31 mg/L	4.78 NTU	-28.9 mV	4.76 ft	150.00 ml/min
6/19/2019 9:12 AM	39:00	6.66 pH	59.33 °F	11,795 µS/cm	0.31 mg/L	3.59 NTU	-28.9 mV	4.76 ft	150.00 ml/min
6/19/2019 9:15 AM	42:00	6.66 pH	59.26 °F	11,718 µS/cm	0.31 mg/L	3.27 NTU	-29.2 mV	4.76 ft	150.00 ml/min
6/19/2019 9:18 AM	45:00	6.67 pH	59.33 °F	11,671 µS/cm	0.30 mg/L	4.10 NTU	-29.2 mV	4.76 ft	150.00 ml/min
6/19/2019 9:21 AM	48:00	6.67 pH	59.47 °F	12,193 µS/cm	0.30 mg/L	3.03 NTU	-29.7 mV	4.76 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-505	Sample Time: 0930 Final DTW: 5.80 fbtoc Ferrous Iron: 6.0

Low-Flow Test Report:

Test Date / Time: 6/19/2019 9:16:10 AM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-509 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.63 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 9:16 AM	00:00	6.29 pH	58.49 °F	40,621 µS/cm	7.47 mg/L	84.76 NTU	212.4 mV	3.63 ft	150.00 ml/min
6/19/2019 9:19 AM	03:00	6.61 pH	59.08 °F	25,087 µS/cm	0.34 mg/L	101.30 NTU	218.2 mV	3.63 ft	150.00 ml/min
6/19/2019 9:22 AM	06:00	6.64 pH	59.61 °F	28,578 µS/cm	0.31 mg/L	107.17 NTU	218.8 mV	3.63 ft	150.00 ml/min
6/19/2019 9:25 AM	09:00	6.66 pH	60.33 °F	27,687 µS/cm	0.70 mg/L	108.97 NTU	218.6 mV	3.63 ft	150.00 ml/min
6/19/2019 9:28 AM	12:00	6.72 pH	60.96 °F	26,756 µS/cm	1.41 mg/L	115.57 NTU	216.9 mV	3.63 ft	150.00 ml/min
6/19/2019 9:31 AM	15:00	6.73 pH	61.25 °F	24,439 µS/cm	1.42 mg/L	167.74 NTU	215.8 mV	3.63 ft	150.00 ml/min
6/19/2019 9:34 AM	18:00	6.74 pH	61.35 °F	24,272 µS/cm	1.38 mg/L	158.36 NTU	214.9 mV	3.63 ft	150.00 ml/min
6/19/2019 9:37 AM	21:00	6.74 pH	61.37 °F	24,454 µS/cm	1.37 mg/L	151.94 NTU	213.8 mV	3.63 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-509	Final DTW: 3.63 Sample Time: 9845 Iron: 0.5 mg/L
MW-509-MS	
MW-509-MSD	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/19/2019 9:25:15 AM

Project: Edmonds Terminal 2Q19 (2)

Operator Name: AP

<p>Location Name: MW-101 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.84 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4500 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.3 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 9:25 AM	00:00	6.06 pH	57.83 °F	6,843.6 µS/cm	5.72 mg/L	3.99 NTU	220.6 mV	8.84 ft	150.00 ml/min
6/19/2019 9:28 AM	03:00	6.07 pH	56.44 °F	6,718.5 µS/cm	0.44 mg/L	2.89 NTU	205.8 mV	8.84 ft	150.00 ml/min
6/19/2019 9:31 AM	06:00	6.08 pH	56.04 °F	6,495.5 µS/cm	0.27 mg/L	0.00 NTU	201.5 mV	8.84 ft	150.00 ml/min
6/19/2019 9:34 AM	09:00	6.09 pH	55.89 °F	6,275.8 µS/cm	0.26 mg/L	0.00 NTU	198.2 mV	8.84 ft	150.00 ml/min
6/19/2019 9:37 AM	12:00	6.10 pH	55.81 °F	6,049.1 µS/cm	0.21 mg/L	0.00 NTU	193.9 mV	8.84 ft	150.00 ml/min
6/19/2019 9:40 AM	15:00	6.11 pH	55.71 °F	5,721.3 µS/cm	0.25 mg/L	0.00 NTU	189.9 mV	8.84 ft	150.00 ml/min
6/19/2019 9:43 AM	18:00	6.13 pH	55.76 °F	5,071.2 µS/cm	0.41 mg/L	0.00 NTU	184.6 mV	8.84 ft	150.00 ml/min
6/19/2019 9:46 AM	21:00	6.21 pH	55.72 °F	3,977.7 µS/cm	1.59 mg/L	0.00 NTU	174.4 mV	8.84 ft	150.00 ml/min
6/19/2019 9:49 AM	24:00	6.27 pH	55.76 °F	2,921.5 µS/cm	3.23 mg/L	0.00 NTU	161.2 mV	8.84 ft	150.00 ml/min
6/19/2019 9:52 AM	27:00	6.26 pH	55.81 °F	2,735.7 µS/cm	3.59 mg/L	0.00 NTU	152.4 mV	8.84 ft	150.00 ml/min
6/19/2019 9:55 AM	30:00	6.25 pH	55.79 °F	2,726.0 µS/cm	3.47 mg/L	0.00 NTU	145.2 mV	8.84 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-101	Final DTW: 9.14 ft btoc Final RDO: Ferrous iron: 0.5 mg/L Sample Time: 1005

Low-Flow Test Report:

Test Date / Time: 6/19/2019 10:30:21 AM

Project: Edmonds Terminal

Operator Name: KZ

<p>Location Name: MW-126 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3.7 ft Total Depth: 14.2 ft Initial Depth to Water: 5.49 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4422.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.72 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

Weather Conditions:

60, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 10:30 AM	00:00	6.99 pH	54.51 °F	556.86 µS/cm	4.26 mg/L	22.41 NTU	65.2 mV	5.49 ft	150.00 ml/min
6/19/2019 10:33 AM	03:00	6.84 pH	53.63 °F	479.54 µS/cm	3.15 mg/L	16.06 NTU	79.7 mV	5.49 ft	150.00 ml/min
6/19/2019 10:36 AM	06:00	6.81 pH	53.45 °F	477.25 µS/cm	3.39 mg/L	12.88 NTU	84.9 mV	5.49 ft	150.00 ml/min
6/19/2019 10:39 AM	09:00	6.80 pH	53.53 °F	479.54 µS/cm	3.26 mg/L	6.01 NTU	90.0 mV	5.49 ft	150.00 ml/min
6/19/2019 10:59 AM	29:29	7.38 pH	58.53 °F	0.07 µS/cm	9.51 mg/L	0.00 NTU	101.3 mV	5.49 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-126	Sample Time: 1045 Final DTW:6.21 Ferrous Iron: 0.0

Low-Flow Test Report:

Test Date / Time: 6/19/2019 10:34:50 AM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-520 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.75 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 10:34 AM	00:00	7.65 pH	60.39 °F	1,011.4 µS/cm	6.06 mg/L	83.65 NTU	184.0 mV	7.75 ft	150.00 ml/min
6/19/2019 10:37 AM	03:00	7.28 pH	59.96 °F	702.23 µS/cm	0.33 mg/L	90.24 NTU	166.4 mV	7.75 ft	150.00 ml/min
6/19/2019 10:40 AM	06:00	7.23 pH	60.04 °F	659.36 µS/cm	0.21 mg/L	85.00 NTU	164.9 mV	7.75 ft	150.00 ml/min
6/19/2019 10:43 AM	09:00	7.20 pH	60.01 °F	653.26 µS/cm	0.20 mg/L	78.57 NTU	164.8 mV	7.75 ft	150.00 ml/min
6/19/2019 10:46 AM	12:00	7.18 pH	60.06 °F	641.45 µS/cm	0.27 mg/L	71.48 NTU	164.7 mV	7.75 ft	150.00 ml/min
6/19/2019 10:49 AM	15:00	7.16 pH	60.08 °F	632.74 µS/cm	0.35 mg/L	69.02 NTU	164.6 mV	7.75 ft	150.00 ml/min
6/19/2019 10:52 AM	18:00	7.15 pH	60.10 °F	645.18 µS/cm	0.35 mg/L	63.99 NTU	164.2 mV	7.75 ft	150.00 ml/min
6/19/2019 10:55 AM	21:00	7.13 pH	60.16 °F	633.39 µS/cm	0.35 mg/L	59.55 NTU	164.5 mV	7.75 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-520

Final DTW: 7.75

Sample Time: 10000

Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/19/2019 11:17:10 AM

Project: Edmonds Terminal 2Q19 (4)

Operator Name: AP

Location Name: MW-8R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.34 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 0 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.3 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200
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Test Notes:

CONTINUATION OF PREVIOUS MW-8R TEST. Stabilization achieved on previous test, accidentally missed adding sample to previous form.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 11:17 AM	00:00	6.65 pH	55.86 °F	450.02 µS/cm	0.50 mg/L	0.00 NTU	126.2 mV	8.34 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-8R	Sample time: 1130 Final DTW: 8.37 Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/19/2019 11:27:47 AM

Project: Edmonds Terminal

Operator Name: KZ

Location Name: MW-143 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3.5 ft Total Depth: 13.61 ft Initial Depth to Water: 5.7 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 9000 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 2.1 ft	Instrument Used: Aqua TROLL 600 Serial Number: 663632
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Test Notes:

Weather Conditions:

65, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 11:27 AM	00:00	6.50 pH	58.16 °F	483.46 µS/cm	1.61 mg/L	2.40 NTU	-30.9 mV	5.70 ft	150.00 ml/min
6/19/2019 11:30 AM	03:00	6.49 pH	58.17 °F	481.92 µS/cm	0.49 mg/L	0.00 NTU	-50.5 mV	5.70 ft	150.00 ml/min
6/19/2019 11:33 AM	06:00	6.48 pH	58.31 °F	485.99 µS/cm	0.56 mg/L	0.00 NTU	-58.1 mV	5.70 ft	150.00 ml/min
6/19/2019 11:36 AM	09:00	6.49 pH	57.74 °F	488.35 µS/cm	0.66 mg/L	0.00 NTU	-61.4 mV	5.70 ft	150.00 ml/min
6/19/2019 11:39 AM	12:00	6.49 pH	57.23 °F	491.11 µS/cm	0.75 mg/L	0.00 NTU	-62.1 mV	5.70 ft	150.00 ml/min
6/19/2019 11:42 AM	15:00	6.49 pH	56.36 °F	492.04 µS/cm	1.15 mg/L	0.00 NTU	-61.1 mV	5.70 ft	150.00 ml/min
6/19/2019 11:45 AM	18:00	6.49 pH	56.22 °F	483.28 µS/cm	1.10 mg/L	2,449.7 NTU	-56.2 mV	5.70 ft	150.00 ml/min
6/19/2019 11:48 AM	21:00	6.49 pH	56.49 °F	404.75 µS/cm	1.33 mg/L	1,350.2 NTU	-48.7 mV	5.70 ft	150.00 ml/min
6/19/2019 11:51 AM	24:00	6.50 pH	56.78 °F	319.41 µS/cm	1.96 mg/L	2,550.4 NTU	-45.4 mV	5.70 ft	150.00 ml/min
6/19/2019 11:54 AM	27:00	6.51 pH	57.25 °F	15.29 µS/cm	2.73 mg/L	1,163.2 NTU	-41.1 mV	5.70 ft	150.00 ml/min
6/19/2019 11:57 AM	30:00	6.55 pH	57.24 °F	233.52 µS/cm	3.44 mg/L	2,196.0 NTU	-37.1 mV	5.70 ft	150.00 ml/min
6/19/2019 12:00 PM	33:00	6.60 pH	57.41 °F	416.59 µS/cm	4.60 mg/L	0.00 NTU	-36.0 mV	5.70 ft	150.00 ml/min

6/19/2019 12:03 PM	36:00	6.67 pH	57.59 °F	472.26 µS/cm	5.63 mg/L	521.66 NTU	-36.8 mV	5.70 ft	150.00 ml/min
6/19/2019 12:06 PM	39:00	6.73 pH	57.86 °F	429.29 µS/cm	6.26 mg/L	155.84 NTU	-42.9 mV	5.70 ft	150.00 ml/min
6/19/2019 12:09 PM	42:00	6.77 pH	57.84 °F	504.32 µS/cm	6.60 mg/L	52.23 NTU	-45.4 mV	5.70 ft	150.00 ml/min
6/19/2019 12:12 PM	45:00	6.81 pH	58.04 °F	534.37 µS/cm	6.75 mg/L	0.00 NTU	-47.2 mV	5.70 ft	150.00 ml/min
6/19/2019 12:15 PM	48:00	6.52 pH	55.74 °F	520.02 µS/cm	1.11 mg/L	2.94 NTU	-32.6 mV	5.70 ft	150.00 ml/min
6/19/2019 12:18 PM	51:00	6.51 pH	55.15 °F	518.07 µS/cm	0.56 mg/L	4.82 NTU	-37.2 mV	5.70 ft	150.00 ml/min
6/19/2019 12:21 PM	54:00	6.50 pH	55.32 °F	518.17 µS/cm	0.44 mg/L	4.39 NTU	-38.4 mV	5.70 ft	150.00 ml/min
6/19/2019 12:24 PM	57:00	6.50 pH	54.91 °F	516.09 µS/cm	0.42 mg/L	3.81 NTU	-40.1 mV	5.70 ft	150.00 ml/min
6/19/2019 12:27 PM	01:00:00	6.51 pH	54.75 °F	516.43 µS/cm	0.44 mg/L	22.05 NTU	-42.7 mV	5.70 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-143	Sample Time: 1240 Final DTW: 8.80 fbtoc Ferrous Iron: 4.5

Low-Flow Test Report:

Test Date / Time: 6/19/2019 11:29:48 AM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-521 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.65 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2700 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 11:29 AM	00:00	7.16 pH	61.09 °F	293.51 µS/cm	2.00 mg/L	62.13 NTU	188.3 mV	6.65 ft	150.00 ml/min
6/19/2019 11:32 AM	03:00	7.06 pH	61.26 °F	277.78 µS/cm	0.40 mg/L	61.89 NTU	184.4 mV	6.65 ft	150.00 ml/min
6/19/2019 11:35 AM	06:00	6.96 pH	61.34 °F	432.82 µS/cm	0.92 mg/L	84.43 NTU	184.0 mV	6.65 ft	150.00 ml/min
6/19/2019 11:38 AM	09:00	6.94 pH	61.43 °F	430.29 µS/cm	1.25 mg/L	84.76 NTU	183.8 mV	6.65 ft	150.00 ml/min
6/19/2019 11:41 AM	12:00	6.94 pH	61.61 °F	430.68 µS/cm	1.35 mg/L	84.31 NTU	183.4 mV	6.65 ft	150.00 ml/min
6/19/2019 11:44 AM	15:00	6.93 pH	61.62 °F	433.75 µS/cm	1.42 mg/L	82.81 NTU	183.2 mV	6.65 ft	150.00 ml/min
6/19/2019 11:47 AM	18:00	6.93 pH	61.72 °F	431.87 µS/cm	1.45 mg/L	80.74 NTU	182.8 mV	6.65 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-521	Final DTW: 6.68 Sample Time: 1055 Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/19/2019 12:24:23 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-20R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4.5 ft Total Depth: 14.5 ft Initial Depth to Water: 6.84 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.22 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Mostly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 12:24 PM	00:00	6.44 pH	60.65 °F	6,097.3 µS/cm	4.41 mg/L	55.75 NTU	199.3 mV	6.84 ft	150.00 ml/min
6/19/2019 12:27 PM	03:00	6.22 pH	57.48 °F	13,380 µS/cm	0.58 mg/L	60.31 NTU	184.3 mV	6.84 ft	150.00 ml/min
6/19/2019 12:30 PM	06:00	6.47 pH	56.01 °F	25,898 µS/cm	0.31 mg/L	53.69 NTU	184.7 mV	6.84 ft	150.00 ml/min
6/19/2019 12:33 PM	09:00	6.62 pH	55.67 °F	24,928 µS/cm	0.18 mg/L	49.21 NTU	146.0 mV	6.84 ft	150.00 ml/min
6/19/2019 12:36 PM	12:00	6.69 pH	55.63 °F	25,052 µS/cm	0.17 mg/L	43.67 NTU	107.1 mV	6.84 ft	150.00 ml/min
6/19/2019 12:39 PM	15:00	6.63 pH	58.42 °F	27,496 µS/cm	0.29 mg/L	54.60 NTU	98.7 mV	6.84 ft	150.00 ml/min
6/19/2019 12:42 PM	18:00	6.68 pH	55.65 °F	26,517 µS/cm	1.72 mg/L	53.45 NTU	92.7 mV	6.84 ft	150.00 ml/min
6/19/2019 12:45 PM	21:00	6.73 pH	55.44 °F	27,900 µS/cm	0.72 mg/L	55.33 NTU	88.4 mV	6.84 ft	150.00 ml/min
6/19/2019 12:48 PM	24:00	6.75 pH	55.35 °F	28,078 µS/cm	0.44 mg/L	56.69 NTU	83.5 mV	6.84 ft	150.00 ml/min
6/19/2019 12:51 PM	27:00	6.76 pH	55.28 °F	26,683 µS/cm	0.29 mg/L	56.05 NTU	79.1 mV	6.84 ft	150.00 ml/min
6/19/2019 12:54 PM	30:00	6.77 pH	55.29 °F	25,532 µS/cm	0.57 mg/L	56.23 NTU	75.2 mV	6.84 ft	150.00 ml/min
6/19/2019 12:57 PM	33:00	6.78 pH	55.14 °F	24,457 µS/cm	0.33 mg/L	59.10 NTU	70.0 mV	6.84 ft	150.00 ml/min

6/19/2019 1:00 PM	36:00	6.78 pH	55.25 °F	22,924 µS/cm	0.29 mg/L	61.28 NTU	67.3 mV	6.84 ft	150.00 ml/min
6/19/2019 1:03 PM	39:00	6.79 pH	55.18 °F	22,952 µS/cm	0.42 mg/L	64.53 NTU	64.6 mV	6.84 ft	150.00 ml/min
6/19/2019 1:06 PM	42:00	6.79 pH	55.24 °F	22,246 µS/cm	0.41 mg/L	66.44 NTU	62.9 mV	6.84 ft	150.00 ml/min
6/19/2019 1:09 PM	45:00	6.79 pH	55.17 °F	22,038 µS/cm	0.20 mg/L	68.88 NTU	61.0 mV	6.84 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-20R	Final DTW: 7.06 Sample Time: 1230 Iron: 1.0 mg/L
DUP-3	

Low-Flow Test Report:

Test Date / Time: 6/19/2019 12:56:41 PM

Project: Edmonds Terminal 2Q19 (5)

Operator Name: AP

<p>Location Name: MW-522 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.4 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4500 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 12:56 PM	00:00	6.56 pH	60.50 °F	894.09 µS/cm	3.22 mg/L	0.00 NTU	174.8 mV	8.40 ft	150.00 ml/min
6/19/2019 12:59 PM	03:00	6.58 pH	57.66 °F	919.70 µS/cm	0.40 mg/L	0.00 NTU	145.5 mV	8.40 ft	150.00 ml/min
6/19/2019 1:02 PM	06:00	6.56 pH	57.01 °F	918.37 µS/cm	0.26 mg/L	0.00 NTU	126.8 mV	8.40 ft	150.00 ml/min
6/19/2019 1:05 PM	09:00	6.55 pH	56.77 °F	912.08 µS/cm	0.27 mg/L	0.00 NTU	117.4 mV	8.40 ft	150.00 ml/min
6/19/2019 1:08 PM	12:00	6.54 pH	56.53 °F	908.16 µS/cm	0.22 mg/L	0.00 NTU	111.5 mV	8.40 ft	150.00 ml/min
6/19/2019 1:11 PM	15:00	6.53 pH	56.45 °F	899.46 µS/cm	0.23 mg/L	0.00 NTU	107.1 mV	8.40 ft	150.00 ml/min
6/19/2019 1:14 PM	18:00	6.52 pH	56.29 °F	895.58 µS/cm	0.18 mg/L	0.00 NTU	103.3 mV	8.40 ft	150.00 ml/min
6/19/2019 1:17 PM	21:00	6.52 pH	56.26 °F	891.74 µS/cm	0.18 mg/L	0.00 NTU	100.0 mV	8.40 ft	150.00 ml/min
6/19/2019 1:20 PM	24:00	6.52 pH	56.14 °F	882.07 µS/cm	0.16 mg/L	0.00 NTU	97.3 mV	8.40 ft	150.00 ml/min
6/19/2019 1:23 PM	27:00	6.51 pH	56.10 °F	875.06 µS/cm	0.16 mg/L	0.00 NTU	95.0 mV	8.40 ft	150.00 ml/min
6/19/2019 1:26 PM	30:00	6.50 pH	56.06 °F	868.55 µS/cm	0.14 mg/L	0.00 NTU	92.2 mV	8.40 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-522	Sample time: 1330 Final DTW: 8.50 ft btoc Ferrous Iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 6/19/2019 1:20:25 PM

Project: Edmonds Terminal

Operator Name: KZ

Location Name: MW-533 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13.05 ft Initial Depth to Water: 5.3 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 1350 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft	Instrument Used: Aqua TROLL 600 Serial Number: 663632
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Test Notes:

Weather Conditions:

60, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/19/2019 1:20 PM	00:00	6.88 pH	61.84 °F	41,618 µS/cm	5.31 mg/L	6.27 NTU	78.9 mV	5.30 ft	150.00 ml/min
6/19/2019 1:23 PM	03:00	7.05 pH	60.76 °F	41,999 µS/cm	4.90 mg/L	3.89 NTU	82.1 mV	5.30 ft	150.00 ml/min
6/19/2019 1:26 PM	06:00	7.06 pH	60.56 °F	42,100 µS/cm	4.89 mg/L	1.70 NTU	87.0 mV	5.30 ft	150.00 ml/min
6/19/2019 1:29 PM	09:00	7.07 pH	60.63 °F	42,122 µS/cm	4.82 mg/L	0.93 NTU	90.9 mV	5.30 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-533	Sample Time: 1330 Final DTW:5.32 fbtoc Ferrous Iron: 0.0

Low-Flow Test Report:

Test Date / Time: 6/20/2019 8:39:38 AM

Project: Edmonds Terminal 2Q19 (6)

Operator Name: AP

<p>Location Name: MW-507 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.92 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.21 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 8:39 AM	00:00	6.55 pH	59.41 °F	971.85 µS/cm	3.42 mg/L	15.12 NTU	207.2 mV	6.92 ft	150.00 ml/min
6/20/2019 8:42 AM	03:00	6.56 pH	58.85 °F	968.67 µS/cm	0.99 mg/L	5.47 NTU	205.5 mV	6.92 ft	150.00 ml/min
6/20/2019 8:45 AM	06:00	6.57 pH	58.61 °F	951.38 µS/cm	0.59 mg/L	1.17 NTU	204.4 mV	6.92 ft	150.00 ml/min
6/20/2019 8:48 AM	09:00	6.57 pH	58.44 °F	944.96 µS/cm	0.53 mg/L	4.05 NTU	204.6 mV	6.92 ft	150.00 ml/min
6/20/2019 8:51 AM	12:00	6.57 pH	58.33 °F	938.56 µS/cm	0.41 mg/L	2.89 NTU	204.3 mV	6.92 ft	150.00 ml/min
6/20/2019 8:54 AM	15:00	6.58 pH	58.41 °F	931.23 µS/cm	0.37 mg/L	1.57 NTU	203.8 mV	6.92 ft	150.00 ml/min
6/20/2019 8:57 AM	18:00	6.60 pH	58.34 °F	924.50 µS/cm	0.30 mg/L	0.00 NTU	203.2 mV	6.92 ft	150.00 ml/min
6/20/2019 9:00 AM	21:00	6.59 pH	58.42 °F	920.70 µS/cm	0.32 mg/L	0.00 NTU	203.6 mV	6.92 ft	150.00 ml/min
6/20/2019 9:03 AM	24:00	6.60 pH	58.45 °F	910.97 µS/cm	0.28 mg/L	0.00 NTU	202.7 mV	6.92 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-507	Sample time: 0910 Final DTW: 7.15 Ferrous Iron: 0.0 mg/L
DUP-2	Sample Time: ---

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 6/20/2019 8:53:10 AM

Project: Edmonds Terminal

Operator Name: KZ

<p>Location Name: MW-104 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 17.82 ft Initial Depth to Water: 8.1 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 13 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.21 ft</p>	<p>Instrument Used: Aqua TROLL 600 Serial Number: 663632</p>
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Test Notes:

Weather Conditions:

60, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 8:53 AM	00:00	6.88 pH	55.76 °F	793.39 µS/cm	5.65 mg/L	68.15 NTU	24.7 mV	8.10 ft	150.00 ml/min
6/20/2019 8:56 AM	03:00	6.68 pH	55.46 °F	613.22 µS/cm	0.85 mg/L	9.26 NTU	-31.2 mV	8.10 ft	150.00 ml/min
6/20/2019 8:59 AM	06:00	6.65 pH	55.34 °F	594.39 µS/cm	0.61 mg/L	31.10 NTU	-35.2 mV	8.10 ft	150.00 ml/min
6/20/2019 9:02 AM	09:00	6.63 pH	55.35 °F	589.72 µS/cm	0.46 mg/L	17.99 NTU	-35.3 mV	8.10 ft	150.00 ml/min
6/20/2019 9:05 AM	12:00	6.62 pH	55.34 °F	595.31 µS/cm	0.42 mg/L	3.99 NTU	-36.1 mV	8.10 ft	150.00 ml/min
6/20/2019 9:08 AM	15:00	6.62 pH	55.38 °F	624.00 µS/cm	0.43 mg/L	4.12 NTU	-37.3 mV	8.10 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-104	<p>Sample Time: 0915 Final DTW: 8.31 Ferrous Iron: 4.5 ORP was within 15% but did not register since it was a negative value.</p>

MW-104-MS	Sample Time: 0916 Final DTW: 8.31 Ferrous Iron: 4.5 ORP was within 15% but did not register since it was a negative value.
MW-104-MSD	Sample Time: 0917 Final DTW: 8.31 Ferrous Iron: 4.5 ORP was within 15% but did not register since it was a negative value.

Low-Flow Test Report:

Test Date / Time: 6/20/2019 9:46:08 AM

Project: Edmonds Terminal 2Q19

Operator Name: KZ

<p>Location Name: MW-532 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.28 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.83 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 10 %		
6/20/2019 9:46 AM	00:00	6.73 pH	57.31 °F	539.83 µS/cm	6.67 mg/L	97.36 NTU	170.4 mV	7.28 ft	150.00 ml/min
6/20/2019 9:49 AM	03:00	6.01 pH	56.47 °F	488.68 µS/cm	0.62 mg/L	101.81 NTU	168.8 mV	7.28 ft	150.00 ml/min
6/20/2019 9:52 AM	06:00	5.96 pH	56.95 °F	493.68 µS/cm	0.89 mg/L	86.14 NTU	171.5 mV	7.28 ft	150.00 ml/min
6/20/2019 9:55 AM	09:00	5.94 pH	56.92 °F	495.87 µS/cm	1.85 mg/L	76.70 NTU	173.6 mV	7.28 ft	150.00 ml/min
6/20/2019 9:58 AM	12:00	5.95 pH	56.52 °F	523.05 µS/cm	1.43 mg/L	74.49 NTU	176.2 mV	7.28 ft	150.00 ml/min
6/20/2019 10:01 AM	15:00	5.93 pH	56.41 °F	542.24 µS/cm	1.19 mg/L	67.40 NTU	177.1 mV	7.28 ft	150.00 ml/min
6/20/2019 10:04 AM	18:00	5.92 pH	56.21 °F	575.21 µS/cm	0.83 mg/L	64.90 NTU	178.5 mV	7.28 ft	150.00 ml/min
6/20/2019 10:07 AM	21:00	5.92 pH	56.06 °F	605.53 µS/cm	0.61 mg/L	65.41 NTU	179.1 mV	7.28 ft	150.00 ml/min
6/20/2019 10:10 AM	24:00	5.92 pH	55.94 °F	628.35 µS/cm	0.48 mg/L	136.39 NTU	179.9 mV	7.28 ft	150.00 ml/min
6/20/2019 10:13 AM	27:00	5.94 pH	55.81 °F	664.77 µS/cm	0.39 mg/L	113.27 NTU	180.0 mV	7.28 ft	150.00 ml/min
6/20/2019 10:16 AM	30:00	5.95 pH	55.72 °F	685.43 µS/cm	0.34 mg/L	131.43 NTU	179.1 mV	7.28 ft	150.00 ml/min
6/20/2019 10:19 AM	33:00	5.97 pH	55.64 °F	706.71 µS/cm	0.28 mg/L	92.03 NTU	178.0 mV	7.28 ft	150.00 ml/min

6/20/2019 10:22 AM	36:00	5.98 pH	55.59 °F	739.49 µS/cm	0.26 mg/L	91.88 NTU	175.8 mV	7.28 ft	150.00 ml/min
6/20/2019 10:25 AM	39:00	5.99 pH	55.53 °F	757.21 µS/cm	0.23 mg/L	91.29 NTU	173.6 mV	7.28 ft	150.00 ml/min
6/20/2019 10:28 AM	42:00	6.00 pH	55.49 °F	765.08 µS/cm	0.21 mg/L	89.34 NTU	171.4 mV	7.28 ft	150.00 ml/min
6/20/2019 10:31 AM	45:00	6.02 pH	55.44 °F	761.11 µS/cm	0.20 mg/L	140.03 NTU	168.4 mV	7.28 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-532	Final DTW: 9.11 Sample Time: 0935 Iron: 2.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 10:04:45 AM

Project: Edmonds Terminal 2Q19 (7)

Operator Name: AP

<p>Location Name: MW-506 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.75 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.11 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 10:04 AM	00:00	6.69 pH	59.84 °F	807.06 µS/cm	2.64 mg/L	10.68 NTU	19.0 mV	6.75 ft	150.00 ml/min
6/20/2019 10:07 AM	03:00	6.70 pH	59.04 °F	797.98 µS/cm	0.32 mg/L	18.84 NTU	-41.1 mV	6.75 ft	150.00 ml/min
6/20/2019 10:10 AM	06:00	6.71 pH	59.19 °F	744.43 µS/cm	0.25 mg/L	6.84 NTU	-56.3 mV	6.75 ft	150.00 ml/min
6/20/2019 10:13 AM	09:00	6.71 pH	59.12 °F	700.28 µS/cm	0.21 mg/L	15.34 NTU	-61.9 mV	6.75 ft	150.00 ml/min
6/20/2019 10:16 AM	12:00	6.68 pH	59.37 °F	668.71 µS/cm	0.20 mg/L	8.84 NTU	-63.8 mV	6.75 ft	150.00 ml/min
6/20/2019 10:19 AM	15:00	6.68 pH	59.56 °F	653.42 µS/cm	0.17 mg/L	42.94 NTU	-66.7 mV	6.75 ft	150.00 ml/min
6/20/2019 10:22 AM	18:00	6.66 pH	59.71 °F	668.33 µS/cm	0.17 mg/L	12.73 NTU	-70.8 mV	6.75 ft	150.00 ml/min
6/20/2019 10:25 AM	21:00	6.66 pH	59.92 °F	703.49 µS/cm	0.16 mg/L	35.09 NTU	-75.1 mV	6.75 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-506

Sample time: 1035
Final DTW: 6.86
Ferrous Iron: 3.5 mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 10:59:32 AM

Project: Edmonds Terminal

Operator Name: KZ

Location Name: MW-129R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.65 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.97 ft	Instrument Used: Aqua TROLL 600 Serial Number: 663632
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Test Notes:

Weather Conditions:

60, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 10:59 AM	00:00	6.82 pH	56.50 °F	1,331.2 µS/cm	1.87 mg/L	4.29 NTU	2.5 mV	5.65 ft	150.00 ml/min
6/20/2019 11:02 AM	03:00	6.82 pH	56.20 °F	1,328.2 µS/cm	0.65 mg/L	2.82 NTU	-21.9 mV	5.65 ft	150.00 ml/min
6/20/2019 11:05 AM	06:00	6.82 pH	55.78 °F	1,329.6 µS/cm	0.44 mg/L	1.70 NTU	-36.5 mV	5.65 ft	150.00 ml/min
6/20/2019 11:08 AM	09:00	6.82 pH	55.47 °F	1,330.5 µS/cm	0.39 mg/L	0.27 NTU	-42.4 mV	5.65 ft	150.00 ml/min
6/20/2019 11:11 AM	12:00	6.82 pH	55.06 °F	1,325.6 µS/cm	0.37 mg/L	0.00 NTU	-46.5 mV	5.65 ft	150.00 ml/min
6/20/2019 11:14 AM	15:00	6.82 pH	55.02 °F	1,328.3 µS/cm	0.35 mg/L	0.00 NTU	-50.3 mV	5.65 ft	150.00 ml/min
6/20/2019 11:17 AM	18:00	6.82 pH	54.63 °F	1,324.0 µS/cm	0.33 mg/L	0.40 NTU	-53.5 mV	5.65 ft	150.00 ml/min
6/20/2019 11:20 AM	21:00	6.82 pH	54.65 °F	1,321.1 µS/cm	0.32 mg/L	0.00 NTU	-55.8 mV	5.65 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-129R

Sample Time: 1130

Final DTW: 6.62

Ferrous Iron: 6.0

ORP was within 15% but did not register since it was a negative value.

Low-Flow Test Report:

Test Date / Time: 6/20/2019 11:08:34 AM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-525 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.49 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.21 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 11:08 AM	00:00	5.15 pH	62.53 °F	7,467.4 µS/cm	4.24 mg/L	67.24 NTU	191.7 mV	6.49 ft	150.00 ml/min
6/20/2019 11:11 AM	03:00	5.06 pH	60.36 °F	6,668.8 µS/cm	0.32 mg/L	105.98 NTU	177.1 mV	6.49 ft	150.00 ml/min
6/20/2019 11:14 AM	06:00	5.18 pH	60.20 °F	6,617.0 µS/cm	0.23 mg/L	127.36 NTU	168.7 mV	6.49 ft	150.00 ml/min
6/20/2019 11:17 AM	09:00	5.28 pH	60.10 °F	6,640.8 µS/cm	0.22 mg/L	228.56 NTU	161.8 mV	6.49 ft	150.00 ml/min
6/20/2019 11:20 AM	12:00	5.62 pH	59.70 °F	8,011.4 µS/cm	0.28 mg/L	170.17 NTU	153.4 mV	6.49 ft	150.00 ml/min
6/20/2019 11:23 AM	15:00	5.62 pH	59.73 °F	7,629.7 µS/cm	0.53 mg/L	146.42 NTU	139.8 mV	6.49 ft	150.00 ml/min
6/20/2019 11:26 AM	18:00	5.70 pH	59.83 °F	7,428.7 µS/cm	0.76 mg/L	135.70 NTU	130.3 mV	6.49 ft	150.00 ml/min
6/20/2019 11:29 AM	21:00	5.76 pH	60.19 °F	7,633.6 µS/cm	0.67 mg/L	118.24 NTU	121.5 mV	6.49 ft	150.00 ml/min
6/20/2019 11:32 AM	24:00	5.79 pH	60.44 °F	7,799.2 µS/cm	0.67 mg/L	90.83 NTU	114.5 mV	6.49 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-525

Final DTW: 6.70
Sample Time: 1035
Iron: 7.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 11:32:45 AM

Project: Edmonds Terminal 2Q19 (8)

Operator Name: AP

Location Name: MW-519 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.06 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 1350 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 11:32 AM	00:00	6.60 pH	62.58 °F	450.07 µS/cm	0.26 mg/L	0.00 NTU	52.6 mV	7.06 ft	150.00 ml/min
6/20/2019 11:35 AM	03:00	6.60 pH	62.77 °F	452.56 µS/cm	0.23 mg/L	0.00 NTU	49.4 mV	7.06 ft	150.00 ml/min
6/20/2019 11:38 AM	06:00	6.60 pH	63.10 °F	454.99 µS/cm	0.24 mg/L	0.00 NTU	47.5 mV	7.06 ft	150.00 ml/min
6/20/2019 11:41 AM	09:00	6.61 pH	63.05 °F	453.04 µS/cm	0.22 mg/L	0.00 NTU	46.1 mV	7.06 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-519	Sample time: 1150 Final DTW: 7.08 ft btoc Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 12:28:12 PM

Project: Edmonds Terminal 2Q19

Operator Name: KF

Location Name: MW-526 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.83 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x 1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467764
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 12:28 PM	00:00	6.62 pH	62.42 °F	408.69 µS/cm	2.16 mg/L	225.01 NTU	54.4 mV	5.83 ft	150.00 ml/min
6/20/2019 12:31 PM	03:00	6.53 pH	61.67 °F	348.17 µS/cm	0.18 mg/L	119.48 NTU	45.6 mV	5.83 ft	150.00 ml/min
6/20/2019 12:34 PM	06:00	6.49 pH	63.21 °F	357.32 µS/cm	0.32 mg/L	127.81 NTU	42.7 mV	5.83 ft	150.00 ml/min
6/20/2019 12:37 PM	09:00	6.44 pH	61.33 °F	325.30 µS/cm	0.13 mg/L	111.45 NTU	45.6 mV	5.83 ft	150.00 ml/min
6/20/2019 12:40 PM	12:00	6.40 pH	61.17 °F	311.19 µS/cm	0.09 mg/L	102.72 NTU	47.0 mV	5.83 ft	150.00 ml/min
6/20/2019 12:43 PM	15:00	6.37 pH	61.07 °F	290.18 µS/cm	0.08 mg/L	110.72 NTU	48.6 mV	5.83 ft	150.00 ml/min
6/20/2019 12:46 PM	18:00	6.36 pH	61.03 °F	276.57 µS/cm	0.07 mg/L	145.03 NTU	49.1 mV	5.83 ft	150.00 ml/min
6/20/2019 12:49 PM	21:00	6.34 pH	60.89 °F	266.04 µS/cm	0.07 mg/L	172.53 NTU	49.6 mV	5.83 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-526

Final DTW: 6.30
Sample Time: 1200
Iron: 7.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 1:06:15 PM

Project: Edmonds Terminal 2Q19 (9)

Operator Name: AP

Location Name: MW-535 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.14 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 8 ft Estimated Total Volume Pumped: 1350 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 1:06 PM	00:00	6.82 pH	64.59 °F	34,578 µS/cm	5.67 mg/L	3.53 NTU	177.4 mV	5.14 ft	150.00 ml/min
6/20/2019 1:09 PM	03:00	6.99 pH	60.77 °F	36,062 µS/cm	5.20 mg/L	9.11 NTU	157.2 mV	5.14 ft	150.00 ml/min
6/20/2019 1:12 PM	06:00	7.01 pH	60.18 °F	36,374 µS/cm	5.14 mg/L	1.15 NTU	147.3 mV	5.14 ft	150.00 ml/min
6/20/2019 1:15 PM	09:00	7.03 pH	60.02 °F	36,607 µS/cm	5.05 mg/L	0.00 NTU	143.5 mV	5.14 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-535	Sample time: 1320 Final DTW: 5.16 ft btoc Ferrous Iron: 0.0 Mg/L

Low-Flow Test Report:

Test Date / Time: 6/20/2019 1:19:12 PM

Project: Edmonds Terminal

Operator Name: KZ

Location Name: LM-2 Well Diameter: 2 in Casing Type: PVC Screen Length: 5.5 ft Top of Screen: 2.5 ft Total Depth: 7.8 ft Initial Depth to Water: 1.85 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170" x 14" Pump Intake From TOC: 5 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.72 ft	Instrument Used: Aqua TROLL 600 Serial Number: 663632
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Test Notes:

Weather Conditions:

65, sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/20/2019 1:19 PM	00:00	5.94 pH	67.68 °F	6,291.5 µS/cm	0.82 mg/L	21.95 NTU	-24.6 mV	1.85 ft	150.00 ml/min
6/20/2019 1:22 PM	03:00	5.94 pH	60.50 °F	6,278.2 µS/cm	0.37 mg/L	10.45 NTU	-27.9 mV	1.85 ft	150.00 ml/min
6/20/2019 1:25 PM	06:00	5.94 pH	60.42 °F	6,245.7 µS/cm	0.39 mg/L	10.27 NTU	-29.9 mV	1.85 ft	150.00 ml/min
6/20/2019 1:28 PM	09:00	5.94 pH	63.51 °F	6,270.1 µS/cm	0.48 mg/L	8.89 NTU	-33.5 mV	1.85 ft	150.00 ml/min
6/20/2019 1:31 PM	12:00	5.94 pH	61.53 °F	6,241.7 µS/cm	0.32 mg/L	12.33 NTU	-34.0 mV	1.85 ft	150.00 ml/min
6/20/2019 1:34 PM	15:00	5.94 pH	61.11 °F	6,259.9 µS/cm	0.61 mg/L	11.24 NTU	-36.1 mV	1.85 ft	150.00 ml/min
6/20/2019 1:37 PM	18:00	5.95 pH	61.09 °F	6,273.7 µS/cm	0.48 mg/L	12.49 NTU	-37.7 mV	1.85 ft	150.00 ml/min
6/20/2019 1:40 PM	21:00	5.95 pH	60.84 °F	6,282.4 µS/cm	0.39 mg/L	11.25 NTU	-39.2 mV	1.85 ft	150.00 ml/min
6/20/2019 1:43 PM	24:00	5.95 pH	60.99 °F	6,288.7 µS/cm	0.40 mg/L	11.26 NTU	-40.4 mV	1.85 ft	150.00 ml/min
6/20/2019 1:46 PM	27:00	5.95 pH	60.88 °F	6,290.4 µS/cm	0.51 mg/L	10.54 NTU	-42.1 mV	1.85 ft	150.00 ml/min
6/20/2019 1:49 PM	30:00	5.96 pH	61.00 °F	6,280.9 µS/cm	0.36 mg/L	9.82 NTU	-43.4 mV	1.85 ft	150.00 ml/min
6/20/2019 1:52 PM	33:00	5.96 pH	61.15 °F	6,260.7 µS/cm	0.51 mg/L	8.88 NTU	-44.4 mV	1.85 ft	150.00 ml/min

6/20/2019 1:55 PM	36:00	5.96 pH	60.58 °F	6,249.2 µS/cm	0.54 mg/L	8.68 NTU	-44.9 mV	1.85 ft	150.00 ml/min
6/20/2019 1:58 PM	39:00	5.97 pH	60.52 °F	6,215.7 µS/cm	0.46 mg/L	8.08 NTU	-46.2 mV	1.85 ft	150.00 ml/min
6/20/2019 2:01 PM	42:00	5.97 pH	60.75 °F	6,188.7 µS/cm	0.46 mg/L	7.83 NTU	-47.0 mV	1.85 ft	150.00 ml/min
6/20/2019 2:04 PM	45:00	5.97 pH	62.10 °F	6,212.8 µS/cm	0.54 mg/L	6.83 NTU	-48.5 mV	1.85 ft	150.00 ml/min

Samples

Sample ID:	Description:
LM-2	Sample Time: 1410 Final DTW: 2.57 fbtoc Ferrous Iron: 6.5

Low-Flow Test Report:

Test Date / Time: 6/21/2019 8:50:19 AM

Project: Edmonds Terminal 2Q19 (10)

Operator Name: AP

<p>Location Name: MW-531 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.71 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/21/2019 8:50 AM	00:00	6.31 pH	57.78 °F	938.37 µS/cm	2.77 mg/L	0.21 NTU	233.7 mV	6.71 ft	150.00 ml/min
6/21/2019 8:53 AM	03:00	6.30 pH	58.10 °F	878.52 µS/cm	0.44 mg/L	0.98 NTU	215.5 mV	6.71 ft	150.00 ml/min
6/21/2019 8:56 AM	06:00	6.30 pH	58.54 °F	861.44 µS/cm	0.25 mg/L	0.19 NTU	206.1 mV	6.71 ft	150.00 ml/min
6/21/2019 8:59 AM	09:00	6.28 pH	58.87 °F	856.22 µS/cm	0.28 mg/L	0.00 NTU	198.6 mV	6.71 ft	150.00 ml/min
6/21/2019 9:02 AM	12:00	6.28 pH	59.01 °F	872.60 µS/cm	0.19 mg/L	1.12 NTU	194.3 mV	6.71 ft	150.00 ml/min
6/21/2019 9:05 AM	15:00	6.28 pH	59.16 °F	871.20 µS/cm	0.20 mg/L	5.34 NTU	190.6 mV	6.71 ft	150.00 ml/min
6/21/2019 9:08 AM	18:00	6.29 pH	59.19 °F	884.78 µS/cm	0.16 mg/L	3.22 NTU	187.6 mV	6.71 ft	150.00 ml/min
6/21/2019 9:11 AM	21:00	6.27 pH	59.30 °F	879.29 µS/cm	0.22 mg/L	7.23 NTU	185.9 mV	6.71 ft	150.00 ml/min
6/21/2019 9:14 AM	24:00	6.27 pH	59.36 °F	875.12 µS/cm	0.17 mg/L	4.04 NTU	183.4 mV	6.71 ft	150.00 ml/min
6/21/2019 9:17 AM	27:00	6.26 pH	59.37 °F	856.91 µS/cm	0.21 mg/L	4.37 NTU	181.9 mV	6.71 ft	150.00 ml/min
6/21/2019 9:20 AM	30:00	6.26 pH	59.42 °F	868.92 µS/cm	0.17 mg/L	8.31 NTU	180.6 mV	6.71 ft	150.00 ml/min
6/21/2019 9:23 AM	33:00	6.26 pH	59.47 °F	863.94 µS/cm	0.18 mg/L	2.31 NTU	179.0 mV	6.71 ft	150.00 ml/min

6/21/2019 9:26 AM	36:00	6.25 pH	59.55 °F	848.59 µS/cm	0.17 mg/L	2.25 NTU	178.0 mV	6.71 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-531	Sample Time: 0930 Final DTW: 7.71 Ferrous Iron: 0.0 mg/L
DUP--4	Sample time: ----

Low-Flow Test Report:

Test Date / Time: 6/21/2019 10:55:38 AM

Project: Edmonds Terminal 2Q19 (11)

Operator Name: AP

<p>Location Name: MW-ER Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.07 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.5 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/21/2019 10:55 AM	00:00	6.54 pH	60.43 °F	1,665.8 µS/cm	1.75 mg/L	0.00 NTU	-56.4 mV	7.07 ft	150.00 ml/min
6/21/2019 10:58 AM	03:00	6.56 pH	59.24 °F	1,692.9 µS/cm	0.28 mg/L	0.00 NTU	-101.6 mV	7.07 ft	150.00 ml/min
6/21/2019 11:01 AM	06:00	6.56 pH	59.21 °F	1,684.2 µS/cm	0.20 mg/L	0.00 NTU	-113.5 mV	7.07 ft	150.00 ml/min
6/21/2019 11:04 AM	09:00	6.56 pH	59.29 °F	1,676.0 µS/cm	0.14 mg/L	0.00 NTU	-118.9 mV	7.07 ft	150.00 ml/min
6/21/2019 11:07 AM	12:00	6.56 pH	59.33 °F	1,653.7 µS/cm	0.14 mg/L	0.22 NTU	-123.9 mV	7.07 ft	150.00 ml/min
6/21/2019 11:10 AM	15:00	6.56 pH	59.44 °F	1,649.6 µS/cm	0.13 mg/L	0.42 NTU	-128.5 mV	7.07 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-ER	Sample time: 1115 Final DTW: 7.57 Ferrous Iron: 4.0 mg/L

Low-Flow Test Report:

Test Date / Time: 6/21/2019 12:04:35 PM

Project: Edmonds Terminal 2Q19 (12)

Operator Name: AP

Location Name: MW-534 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.65 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.170" x1/4" Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.12 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565200
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/21/2019 12:04 PM	00:00	6.22 pH	63.12 °F	27,039 µS/cm	3.12 mg/L	49.57 NTU	-33.2 mV	3.65 ft	150.00 ml/min
6/21/2019 12:07 PM	03:00	6.25 pH	62.12 °F	27,477 µS/cm	0.31 mg/L	21.02 NTU	-59.7 mV	3.65 ft	150.00 ml/min
6/21/2019 12:10 PM	06:00	6.25 pH	62.12 °F	26,288 µS/cm	0.18 mg/L	10.41 NTU	-71.7 mV	3.65 ft	150.00 ml/min
6/21/2019 12:13 PM	09:00	6.26 pH	62.31 °F	24,848 µS/cm	0.17 mg/L	7.29 NTU	-83.0 mV	3.65 ft	150.00 ml/min
6/21/2019 12:16 PM	12:00	6.26 pH	62.40 °F	24,073 µS/cm	0.13 mg/L	20.50 NTU	-90.0 mV	3.65 ft	150.00 ml/min
6/21/2019 12:19 PM	15:00	6.26 pH	62.57 °F	23,788 µS/cm	0.17 mg/L	1.73 NTU	-95.9 mV	3.65 ft	150.00 ml/min
6/21/2019 12:22 PM	18:00	6.26 pH	62.50 °F	23,724 µS/cm	0.15 mg/L	0.00 NTU	-102.1 mV	3.65 ft	150.00 ml/min
6/21/2019 12:25 PM	21:00	6.26 pH	62.48 °F	23,795 µS/cm	0.13 mg/L	0.33 NTU	-107.7 mV	3.65 ft	150.00 ml/min
6/21/2019 12:28 PM	24:00	6.27 pH	62.41 °F	23,867 µS/cm	0.12 mg/L	0.08 NTU	-113.6 mV	3.65 ft	150.00 ml/min
6/21/2019 12:31 PM	27:00	6.27 pH	62.46 °F	23,909 µS/cm	0.16 mg/L	2.30 NTU	-119.9 mV	3.65 ft	150.00 ml/min
6/21/2019 12:34 PM	30:00	6.27 pH	62.33 °F	23,958 µS/cm	0.12 mg/L	0.67 NTU	-126.3 mV	3.65 ft	150.00 ml/min
6/21/2019 12:37 PM	33:00	6.27 pH	62.30 °F	24,041 µS/cm	0.12 mg/L	0.00 NTU	-132.2 mV	3.65 ft	150.00 ml/min

6/21/2019 12:40 PM	36:00	6.26 pH	62.27 °F	24,129 µS/cm	0.11 mg/L	0.00 NTU	-137.1 mV	3.65 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-534	Sample time: 1245 Final DTW: 3.77 ft btoc Ferrous Iron: 6 mg/L

Low-Flow Test Report:

Test Date / Time: 9/17/2019 9:14:35 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-129R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.6 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2.5 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
 Heavy rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/17/2019 9:14 AM	00:00	6.71 pH	58.17 °F	1,454.8 µS/cm	1.69 mg/L	0.00 NTU	-225.0 mV	5.60 ft	150.00 ml/min
9/17/2019 9:17 AM	03:00	6.71 pH	57.52 °F	1,437.2 µS/cm	0.23 mg/L	4.56 NTU	-217.6 mV	5.60 ft	150.00 ml/min
9/17/2019 9:20 AM	06:00	6.71 pH	57.41 °F	1,436.6 µS/cm	0.18 mg/L	7.90 NTU	-224.4 mV	5.60 ft	150.00 ml/min
9/17/2019 9:23 AM	09:00	6.71 pH	57.37 °F	1,438.6 µS/cm	0.10 mg/L	7.60 NTU	-224.7 mV	5.60 ft	150.00 ml/min
9/17/2019 9:26 AM	12:00	6.72 pH	57.31 °F	1,434.5 µS/cm	0.07 mg/L	7.95 NTU	-225.2 mV	5.60 ft	150.00 ml/min
9/17/2019 9:29 AM	15:00	6.71 pH	57.29 °F	1,429.2 µS/cm	0.06 mg/L	8.01 NTU	-227.4 mV	5.60 ft	150.00 ml/min
9/17/2019 9:32 AM	18:00	6.72 pH	57.22 °F	1,422.6 µS/cm	0.06 mg/L	7.86 NTU	-224.4 mV	5.60 ft	150.00 ml/min
9/17/2019 9:35 AM	21:00	6.72 pH	57.19 °F	1,418.7 µS/cm	0.05 mg/L	7.83 NTU	-221.1 mV	5.60 ft	150.00 ml/min
9/17/2019 9:38 AM	24:00	6.72 pH	57.11 °F	1,417.2 µS/cm	0.05 mg/L	8.05 NTU	-224.8 mV	5.60 ft	150.00 ml/min
9/17/2019 9:41 AM	27:00	6.72 pH	57.06 °F	1,417.7 µS/cm	0.04 mg/L	7.99 NTU	-221.3 mV	5.60 ft	150.00 ml/min
9/17/2019 9:44 AM	30:00	6.72 pH	56.98 °F	1,421.0 µS/cm	0.05 mg/L	7.99 NTU	-220.1 mV	5.60 ft	150.00 ml/min
9/17/2019 9:47 AM	33:00	6.72 pH	56.92 °F	1,422.6 µS/cm	0.03 mg/L	7.96 NTU	-220.2 mV	5.60 ft	150.00 ml/min
9/17/2019 9:50 AM	36:00	6.72 pH	56.85 °F	1,423.9 µS/cm	0.03 mg/L	6.61 NTU	-219.8 mV	5.60 ft	150.00 ml/min

9/17/2019 9:53 AM	39:00	6.73 pH	56.78 °F	1,426.2 µS/cm	0.03 mg/L	7.96 NTU	-218.9 mV	5.60 ft	150.00 ml/min
9/17/2019 9:56 AM	42:00	6.73 pH	56.73 °F	1,427.5 µS/cm	0.03 mg/L	8.01 NTU	-218.2 mV	5.60 ft	150.00 ml/min
9/17/2019 9:59 AM	45:00	6.73 pH	56.68 °F	1,430.3 µS/cm	0.03 mg/L	8.07 NTU	-218.4 mV	5.60 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-129R	Sample Time: 1000 Final DTW: 6.70 ft bloc Final RDO: 0.03 mg/L

Low-Flow Test Report:

Test Date / Time: 9/17/2019 9:22:16 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

Location Name: MW-525 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.26 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 6300 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.42 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

Raining

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/17/2019 9:22 AM	00:00	6.33 pH	62.17 °F	5,546.8 µS/cm	1.23 mg/L	104.69 NTU	-71.3 mV	6.26 ft	150.00 ml/min
9/17/2019 9:25 AM	03:00	6.23 pH	62.96 °F	5,230.0 µS/cm	0.31 mg/L	14.76 NTU	-76.0 mV	6.26 ft	150.00 ml/min
9/17/2019 9:28 AM	06:00	6.16 pH	63.17 °F	4,892.6 µS/cm	0.30 mg/L	12.25 NTU	-91.6 mV	6.26 ft	150.00 ml/min
9/17/2019 9:31 AM	09:00	6.23 pH	62.81 °F	5,257.6 µS/cm	0.32 mg/L	4.36 NTU	-113.7 mV	6.26 ft	150.00 ml/min
9/17/2019 9:34 AM	12:00	6.23 pH	62.96 °F	5,164.0 µS/cm	0.24 mg/L	3.32 NTU	-108.3 mV	6.26 ft	150.00 ml/min
9/17/2019 9:37 AM	15:00	6.20 pH	62.83 °F	5,048.1 µS/cm	0.24 mg/L	4.77 NTU	-111.1 mV	6.26 ft	150.00 ml/min
9/17/2019 9:40 AM	18:00	6.15 pH	62.75 °F	4,885.4 µS/cm	0.18 mg/L	3.94 NTU	-96.0 mV	6.26 ft	150.00 ml/min
9/17/2019 9:43 AM	21:00	6.17 pH	62.77 °F	4,932.4 µS/cm	0.17 mg/L	5.11 NTU	-111.9 mV	6.26 ft	150.00 ml/min
9/17/2019 9:46 AM	24:00	6.16 pH	62.70 °F	4,924.0 µS/cm	0.21 mg/L	13.83 NTU	-96.7 mV	6.26 ft	150.00 ml/min
9/17/2019 9:49 AM	27:00	6.15 pH	62.98 °F	4,893.8 µS/cm	0.18 mg/L	19.78 NTU	-102.3 mV	6.26 ft	150.00 ml/min
9/17/2019 9:52 AM	30:00	6.15 pH	62.84 °F	4,776.8 µS/cm	0.22 mg/L	21.27 NTU	-102.3 mV	6.26 ft	150.00 ml/min
9/17/2019 9:55 AM	33:00	6.16 pH	62.64 °F	4,785.5 µS/cm	0.14 mg/L	15.66 NTU	-116.1 mV	6.26 ft	150.00 ml/min

9/17/2019 9:58 AM	36:00	6.16 pH	62.83 °F	4,786.8 µS/cm	0.13 mg/L	9.83 NTU	-119.1 mV	6.26 ft	150.00 ml/min
9/17/2019 10:01 AM	39:00	6.16 pH	62.85 °F	4,750.4 µS/cm	0.13 mg/L	6.72 NTU	-121.2 mV	6.26 ft	150.00 ml/min
9/17/2019 10:04 AM	42:00	6.16 pH	62.72 °F	4,726.4 µS/cm	0.13 mg/L	5.10 NTU	-121.0 mV	6.26 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-525	Sample Time: 1010 Final DTW: 6.68

Low-Flow Test Report:

Test Date / Time: 9/17/2019 10:34:43 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-ER Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.06 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2.5 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15		
9/17/2019 10:34 AM	00:00	6.61 pH	59.55 °F	971.00 µS/cm	1.43 mg/L	-145.5 mV	7.06 ft	150.00 ml/min
9/17/2019 10:37 AM	03:00	6.59 pH	62.06 °F	1,203.6 µS/cm	0.29 mg/L	-166.5 mV	7.06 ft	150.00 ml/min
9/17/2019 10:40 AM	06:00	6.58 pH	62.49 °F	1,194.1 µS/cm	0.47 mg/L	-170.9 mV	7.06 ft	150.00 ml/min
9/17/2019 10:43 AM	09:00	6.57 pH	62.81 °F	1,190.7 µS/cm	0.15 mg/L	-181.2 mV	7.06 ft	150.00 ml/min
9/17/2019 10:46 AM	12:00	6.57 pH	63.03 °F	1,189.7 µS/cm	0.11 mg/L	-177.7 mV	7.06 ft	150.00 ml/min
9/17/2019 10:49 AM	15:00	6.56 pH	63.26 °F	1,187.9 µS/cm	0.18 mg/L	-176.6 mV	7.06 ft	150.00 ml/min
9/17/2019 10:52 AM	18:00	6.56 pH	63.27 °F	1,184.9 µS/cm	0.45 mg/L	-176.2 mV	7.06 ft	150.00 ml/min
9/17/2019 10:55 AM	21:00	6.56 pH	63.20 °F	1,185.5 µS/cm	0.07 mg/L	-186.5 mV	7.06 ft	150.00 ml/min
9/17/2019 10:58 AM	24:00	6.56 pH	63.30 °F	1,184.9 µS/cm	0.11 mg/L	-179.6 mV	7.06 ft	150.00 ml/min
9/17/2019 11:01 AM	27:00	6.56 pH	63.32 °F	1,185.5 µS/cm	0.15 mg/L	-181.4 mV	7.06 ft	150.00 ml/min
9/17/2019 11:04 AM	30:00	6.56 pH	63.23 °F	1,182.3 µS/cm	0.29 mg/L	-178.5 mV	7.06 ft	150.00 ml/min
9/17/2019 11:07 AM	33:00	6.56 pH	63.23 °F	1,186.7 µS/cm	0.41 mg/L	-182.0 mV	7.06 ft	150.00 ml/min
9/17/2019 11:10 AM	36:00	6.56 pH	63.22 °F	1,187.1 µS/cm	0.33 mg/L	-184.5 mV	7.06 ft	150.00 ml/min
9/17/2019 11:13 AM	39:00	6.56 pH	63.20 °F	1,187.6 µS/cm	0.30 mg/L	-185.8 mV	7.06 ft	150.00 ml/min
9/17/2019 11:16 AM	42:00	6.56 pH	63.10 °F	1,187.2 µS/cm	0.43 mg/L	-188.6 mV	7.06 ft	150.00 ml/min

9/17/2019 11:19 AM	45:00	6.56 pH	63.05 °F	1,190.5 µS/cm	0.35 mg/L	-190.2 mV	7.06 ft	150.00 ml/min
9/17/2019 11:23 AM	48:44	6.56 pH	63.05 °F	1,190.3 µS/cm	0.31 mg/L	-193.9 mV	7.06 ft	150.00 ml/min
9/17/2019 11:24 AM	49:35	6.56 pH	63.04 °F	1,192.7 µS/cm	0.09 mg/L	-198.5 mV	7.06 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-ER	Sample Time: 1120 Final DTW: 7.59 ft btoc Final RDO: 0.35 mg/L

Low-Flow Test Report:

Test Date / Time: 9/17/2019 10:40:47 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

Location Name: MW-532 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.22 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

Raining

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/17/2019 10:40 AM	00:00	5.98 pH	61.31 °F	308.63 µS/cm	1.68 mg/L	21.05 NTU	73.8 mV	7.22 ft	150.00 ml/min
9/17/2019 10:43 AM	03:00	5.90 pH	61.42 °F	254.81 µS/cm	0.79 mg/L	15.19 NTU	92.7 mV	7.22 ft	150.00 ml/min
9/17/2019 10:46 AM	06:00	5.85 pH	61.20 °F	245.32 µS/cm	0.67 mg/L	30.73 NTU	103.3 mV	7.22 ft	150.00 ml/min
9/17/2019 10:49 AM	09:00	5.82 pH	61.23 °F	242.90 µS/cm	0.69 mg/L	25.43 NTU	108.9 mV	7.22 ft	150.00 ml/min
9/17/2019 10:52 AM	12:00	5.77 pH	61.35 °F	250.57 µS/cm	0.76 mg/L	14.64 NTU	113.5 mV	7.22 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-532	Sample Time: 1055 Final DTW: 7.28

Low-Flow Test Report:

Test Date / Time: 9/17/2019 11:30:38 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-531 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.54 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/17/2019 11:30 AM	00:00	6.09 pH	61.51 °F	2,057.2 µS/cm	3.44 mg/L	1,938.2 NTU	-79.9 mV	7.54 ft	150.00 ml/min
9/17/2019 11:33 AM	03:00	6.19 pH	62.27 °F	1,941.1 µS/cm	0.28 mg/L	264.21 NTU	-68.3 mV	7.54 ft	150.00 ml/min
9/17/2019 11:36 AM	06:00	6.23 pH	62.78 °F	1,858.4 µS/cm	0.25 mg/L	143.29 NTU	-79.0 mV	7.54 ft	150.00 ml/min
9/17/2019 11:39 AM	09:00	6.28 pH	63.22 °F	1,755.1 µS/cm	0.44 mg/L	1,118.5 NTU	-85.8 mV	7.54 ft	150.00 ml/min
9/17/2019 11:42 AM	12:00	6.32 pH	63.48 °F	1,663.7 µS/cm	0.16 mg/L	688.61 NTU	-91.8 mV	7.54 ft	150.00 ml/min
9/17/2019 11:45 AM	15:00	6.33 pH	63.66 °F	1,629.1 µS/cm	0.17 mg/L	50.24 NTU	-81.6 mV	7.54 ft	150.00 ml/min
9/17/2019 11:48 AM	18:00	6.34 pH	63.85 °F	1,604.9 µS/cm	0.23 mg/L	18.85 NTU	-67.8 mV	7.54 ft	150.00 ml/min
9/17/2019 11:51 AM	21:00	6.35 pH	64.05 °F	1,608.0 µS/cm	0.15 mg/L	4.96 NTU	-63.9 mV	7.54 ft	150.00 ml/min
9/17/2019 11:54 AM	24:00	6.36 pH	64.22 °F	1,619.8 µS/cm	0.23 mg/L	2.54 NTU	-52.1 mV	7.54 ft	150.00 ml/min
9/17/2019 11:57 AM	27:00	6.36 pH	64.37 °F	1,628.7 µS/cm	0.19 mg/L	0.61 NTU	-44.0 mV	7.54 ft	150.00 ml/min
9/17/2019 12:00 PM	30:00	6.37 pH	64.49 °F	1,628.3 µS/cm	0.13 mg/L	0.83 NTU	-44.0 mV	7.54 ft	150.00 ml/min
9/17/2019 12:03 PM	33:00	6.37 pH	64.58 °F	1,637.1 µS/cm	0.13 mg/L	0.09 NTU	-41.8 mV	7.54 ft	150.00 ml/min

9/17/2019 12:06 PM	36:00	6.37 pH	64.66 °F	1,637.3 μS/cm	0.16 mg/L	0.00 NTU	-35.7 mV	7.54 ft	150.00 ml/min
9/17/2019 12:09 PM	39:00	6.37 pH	64.66 °F	1,627.9 μS/cm	0.19 mg/L	0.00 NTU	-28.2 mV	7.54 ft	150.00 ml/min
9/17/2019 12:12 PM	42:00	6.36 pH	64.66 °F	1,627.9 μS/cm	0.20 mg/L	3.29 NTU	-22.0 mV	7.54 ft	150.00 ml/min
9/17/2019 12:15 PM	45:00	6.36 pH	64.77 °F	1,623.8 μS/cm	0.13 mg/L	0.00 NTU	-19.9 mV	7.54 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-531	Sample Time: 1215 Final DTW: 7.55 DUP-1
DUP-1	

Low-Flow Test Report:

Test Date / Time: 9/17/2019 11:53:21 AM

Project: Edmonds Terminal 3Q19

Operator Name: BT

<p>Location Name: MW-104 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 9.11 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 2730 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/17/2019 11:53 AM	00:00	6.32 pH	63.97 °F	8,706.4 µS/cm	3.16 mg/L		-55.2 mV	9.11 ft	130.00 ml/min
9/17/2019 11:56 AM	03:00	6.13 pH	61.99 °F	8,251.3 µS/cm	0.36 mg/L		-66.8 mV	9.11 ft	130.00 ml/min
9/17/2019 11:59 AM	06:00	6.10 pH	61.30 °F	8,555.3 µS/cm	0.16 mg/L		-78.2 mV	9.11 ft	130.00 ml/min
9/17/2019 12:02 PM	09:00	6.12 pH	61.11 °F	8,325.0 µS/cm	0.11 mg/L		-75.5 mV	9.11 ft	130.00 ml/min
9/17/2019 12:05 PM	12:00	6.12 pH	61.03 °F	8,192.7 µS/cm	0.07 mg/L		-81.3 mV	9.11 ft	130.00 ml/min
9/17/2019 12:08 PM	15:00	6.13 pH	61.13 °F	7,197.5 µS/cm	0.11 mg/L		-82.1 mV	9.11 ft	130.00 ml/min
9/17/2019 12:11 PM	18:00	6.13 pH	61.02 °F	7,596.4 µS/cm	0.12 mg/L		-86.0 mV	9.11 ft	130.00 ml/min
9/17/2019 12:14 PM	21:00	6.13 pH	60.84 °F	7,564.9 µS/cm	0.11 mg/L		-90.7 mV	9.11 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-104	Sample time 1220 Final DTW 8.38'

Low-Flow Test Report:

Test Date / Time: 9/17/2019 11:57:16 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

<p>Location Name: MW-534 Latitude: 47.8067090600562 Longitude: -122.388883195817 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.49 ft</p>	<p>Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 7 ft Estimated Total Volume Pumped: 2.5 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.05 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545</p>
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Test Notes:

Weather Conditions:
 Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/17/2019 11:57 AM	00:00	6.29 pH	63.15 °F	30,800 µS/cm	2.89 mg/L	0.00 NTU	-99.5 mV	3.49 ft	150.00 ml/min
9/17/2019 12:00 PM	03:00	6.44 pH	64.86 °F	33,807 µS/cm	0.35 mg/L	1.69 NTU	-170.1 mV	3.49 ft	150.00 ml/min
9/17/2019 12:03 PM	06:00	6.46 pH	65.50 °F	33,736 µS/cm	0.28 mg/L	3.84 NTU	-182.7 mV	3.49 ft	150.00 ml/min
9/17/2019 12:06 PM	09:00	6.47 pH	65.86 °F	33,607 µS/cm	0.28 mg/L	6.07 NTU	-195.9 mV	3.49 ft	150.00 ml/min
9/17/2019 12:09 PM	12:00	6.48 pH	66.12 °F	33,305 µS/cm	0.36 mg/L	0.00 NTU	-185.8 mV	3.49 ft	150.00 ml/min
9/17/2019 12:12 PM	15:00	6.48 pH	66.33 °F	32,620 µS/cm	0.33 mg/L	8.62 NTU	-200.5 mV	3.49 ft	150.00 ml/min
9/17/2019 12:15 PM	18:00	6.48 pH	66.49 °F	31,998 µS/cm	0.30 mg/L	2.05 NTU	-173.6 mV	3.49 ft	150.00 ml/min
9/17/2019 12:18 PM	21:00	6.47 pH	66.51 °F	31,452 µS/cm	0.33 mg/L	9.60 NTU	-198.4 mV	3.49 ft	150.00 ml/min
9/17/2019 12:21 PM	24:00	6.47 pH	66.68 °F	31,079 µS/cm	0.42 mg/L	10.31 NTU	-172.5 mV	3.49 ft	150.00 ml/min
9/17/2019 12:24 PM	27:00	6.47 pH	66.70 °F	30,229 µS/cm	0.34 mg/L	10.61 NTU	-196.1 mV	3.49 ft	150.00 ml/min
9/17/2019 12:27 PM	30:00	6.47 pH	66.81 °F	30,552 µS/cm	0.29 mg/L	7.34 NTU	-176.9 mV	3.49 ft	150.00 ml/min
9/17/2019 12:30 PM	33:00	6.47 pH	66.81 °F	30,538 µS/cm	0.08 mg/L	8.51 NTU	-211.4 mV	3.49 ft	150.00 ml/min
9/17/2019 12:33 PM	36:00	6.47 pH	66.91 °F	30,389 µS/cm	0.07 mg/L	9.21 NTU	-211.0 mV	3.49 ft	150.00 ml/min

9/17/2019 12:36 PM	39:00	6.47 pH	66.96 °F	29,518 µS/cm	0.07 mg/L	10.57 NTU	-216.5 mV	3.49 ft	150.00 ml/min
9/17/2019 12:39 PM	42:00	6.47 pH	67.03 °F	30,211 µS/cm	0.06 mg/L	11.31 NTU	-214.1 mV	3.49 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-534	Sample Time: 1245 Final DTW: 3.56 ft btoc Final RDO:

Low-Flow Test Report:

Test Date / Time: 9/17/2019 12:55:26 PM

Project: Edmonds Terminal 3Q19 (2)

Operator Name: BT

<p>Location Name: MW-533 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.14 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 2730 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0.04 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:
Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/17/2019 12:55 PM	00:00	6.28 pH	64.24 °F	40,635 µS/cm	2.24 mg/L		-12.0 mV	5.14 ft	130.00 ml/min
9/17/2019 12:58 PM	03:00	6.71 pH	63.45 °F	41,429 µS/cm	3.48 mg/L		21.3 mV	5.14 ft	130.00 ml/min
9/17/2019 1:01 PM	06:00	6.72 pH	63.35 °F	41,458 µS/cm	3.44 mg/L		31.6 mV	5.14 ft	130.00 ml/min
9/17/2019 1:04 PM	09:00	6.73 pH	63.51 °F	41,514 µS/cm	3.39 mg/L		38.2 mV	5.14 ft	130.00 ml/min
9/17/2019 1:07 PM	12:00	6.73 pH	63.48 °F	41,536 µS/cm	3.29 mg/L		42.9 mV	5.14 ft	130.00 ml/min
9/17/2019 1:10 PM	15:00	6.73 pH	63.46 °F	41,554 µS/cm	3.20 mg/L		46.4 mV	5.14 ft	130.00 ml/min
9/17/2019 1:13 PM	18:00	6.73 pH	63.50 °F	41,575 µS/cm	3.13 mg/L		49.2 mV	5.14 ft	130.00 ml/min
9/17/2019 1:16 PM	21:00	6.74 pH	63.58 °F	41,574 µS/cm	3.07 mg/L		51.3 mV	5.14 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-533	Sample time 1320 Final DTW 5.18

Low-Flow Test Report:

Test Date / Time: 9/17/2019 1:08:05 PM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-530 Well Diameter: 2 in Casing Type: PVC Screen Length: 5 ft Top of Screen: 3 ft Total Depth: 8 ft Initial Depth to Water: 6.44 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 7.25 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/17/2019 1:08 PM	00:00	6.53 pH	60.64 °F	35,352 µS/cm	9.02 mg/L	856.30 NTU	-180.1 mV	6.44 ft	150.00 ml/min
9/17/2019 1:11 PM	03:00	6.39 pH	60.31 °F	36,012 µS/cm	1.57 mg/L	53.83 NTU	-214.4 mV	6.44 ft	150.00 ml/min
9/17/2019 1:14 PM	06:00	6.40 pH	60.14 °F	36,035 µS/cm	0.26 mg/L	34.96 NTU	-233.9 mV	6.44 ft	150.00 ml/min
9/17/2019 1:17 PM	09:00	6.41 pH	60.06 °F	35,938 µS/cm	0.18 mg/L	33.73 NTU	-243.3 mV	6.44 ft	150.00 ml/min
9/17/2019 1:20 PM	12:00	6.42 pH	59.82 °F	35,751 µS/cm	0.14 mg/L	81.03 NTU	-247.9 mV	6.44 ft	150.00 ml/min
9/17/2019 1:23 PM	15:00	6.43 pH	59.64 °F	35,599 µS/cm	0.12 mg/L	109.41 NTU	-250.7 mV	6.44 ft	150.00 ml/min
9/17/2019 1:26 PM	18:00	6.44 pH	59.45 °F	35,403 µS/cm	0.11 mg/L	92.04 NTU	-253.2 mV	6.44 ft	150.00 ml/min
9/17/2019 1:29 PM	21:00	6.45 pH	59.36 °F	35,311 µS/cm	0.09 mg/L	125.55 NTU	-256.3 mV	6.44 ft	150.00 ml/min
9/17/2019 1:32 PM	24:00	6.46 pH	59.20 °F	34,991 µS/cm	0.08 mg/L	142.12 NTU	-257.5 mV	6.44 ft	150.00 ml/min
9/17/2019 1:35 PM	27:00	6.47 pH	59.20 °F	34,913 µS/cm	0.07 mg/L	439.10 NTU	-260.7 mV	6.44 ft	150.00 ml/min
9/17/2019 1:38 PM	30:00	6.49 pH	59.10 °F	34,383 µS/cm	0.03 mg/L	1,081.1 NTU	-264.8 mV	6.44 ft	150.00 ml/min
9/17/2019 1:41 PM	33:00	6.48 pH	59.17 °F	34,327 µS/cm	0.02 mg/L	1,596.2 NTU	-266.3 mV	6.44 ft	150.00 ml/min

9/17/2019 1:44 PM	36:00	6.48 pH	59.10 °F	34,416 µS/cm	0.05 mg/L	514.36 NTU	-266.9 mV	6.44 ft	150.00 ml/min
9/17/2019 1:47 PM	39:00	6.49 pH	59.05 °F	34,280 µS/cm	0.06 mg/L	241.11 NTU	-268.2 mV	6.44 ft	150.00 ml/min
9/17/2019 1:50 PM	42:00	6.49 pH	59.05 °F	34,083 µS/cm	0.06 mg/L	198.47 NTU	-269.2 mV	6.44 ft	150.00 ml/min
9/17/2019 1:53 PM	45:00	6.50 pH	59.10 °F	33,944 µS/cm	0.06 mg/L	223.15 NTU	-271.3 mV	6.44 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-530	Sample Time: 1350 Final DTW: 7.17

Low-Flow Test Report:

Test Date / Time: 9/17/2019 1:12:49 PM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: LM-2 Well Diameter: 2 in Casing Type: PVC Screen Length: 5.5 ft Top of Screen: 2.5 ft Total Depth: 8 ft Initial Depth to Water: 1.58 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 5 ft Estimated Total Volume Pumped: 2 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.84 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
 Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/17/2019 1:12 PM	00:00	5.99 pH	66.94 °F	10,286 µS/cm	1.09 mg/L	56.32 NTU	-148.5 mV	1.58 ft	150.00 ml/min
9/17/2019 1:15 PM	03:00	5.97 pH	65.60 °F	10,366 µS/cm	0.10 mg/L	10.92 NTU	-155.4 mV	1.58 ft	150.00 ml/min
9/17/2019 1:18 PM	06:00	5.97 pH	65.35 °F	10,352 µS/cm	0.04 mg/L	0.00 NTU	-158.3 mV	1.58 ft	150.00 ml/min
9/17/2019 1:21 PM	09:00	5.97 pH	65.34 °F	10,424 µS/cm	0.02 mg/L	0.00 NTU	-161.5 mV	1.58 ft	150.00 ml/min
9/17/2019 1:24 PM	12:00	5.97 pH	65.17 °F	10,439 µS/cm	0.01 mg/L	0.00 NTU	-164.2 mV	1.58 ft	150.00 ml/min
9/17/2019 1:27 PM	15:00	5.97 pH	65.09 °F	10,414 µS/cm	0.01 mg/L	0.00 NTU	-165.8 mV	1.58 ft	150.00 ml/min
9/17/2019 1:30 PM	18:00	5.98 pH	64.97 °F	10,378 µS/cm	0.00 mg/L	0.00 NTU	-168.2 mV	1.58 ft	150.00 ml/min
9/17/2019 1:33 PM	21:00	5.98 pH	64.92 °F	10,364 µS/cm	0.00 mg/L	0.00 NTU	-170.5 mV	1.58 ft	150.00 ml/min
9/17/2019 1:36 PM	24:00	5.98 pH	64.89 °F	10,362 µS/cm	0.00 mg/L	0.00 NTU	-172.9 mV	1.58 ft	150.00 ml/min
9/17/2019 1:39 PM	27:00	5.99 pH	64.80 °F	10,353 µS/cm	0.00 mg/L	0.00 NTU	-175.0 mV	1.58 ft	150.00 ml/min

Samples

Sample ID:	Description:
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LM-2

Sample Time: 1340
Final DTW: 2.42 ft btoc
Final RDO: 0.00 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 8:27:26 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-502 Latitude: 47.8056443849013 Longitude: -122.388667613268 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.48 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2.5 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.25 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
 Mostly c

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/18/2019 8:27 AM	00:00	6.54 pH	57.41 °F	325.32 µS/cm	3.32 mg/L	65.64 NTU	58.0 mV	5.48 ft	150.00 ml/min
9/18/2019 8:30 AM	03:00	6.44 pH	57.95 °F	268.82 µS/cm	0.70 mg/L	33.50 NTU	55.4 mV	5.48 ft	150.00 ml/min
9/18/2019 8:33 AM	06:00	6.41 pH	58.16 °F	267.90 µS/cm	0.22 mg/L	18.01 NTU	57.1 mV	5.48 ft	150.00 ml/min
9/18/2019 8:36 AM	09:00	6.40 pH	58.28 °F	264.63 µS/cm	0.16 mg/L	2.84 NTU	55.1 mV	5.48 ft	150.00 ml/min
9/18/2019 8:39 AM	12:00	6.39 pH	58.40 °F	262.80 µS/cm	0.12 mg/L	4.69 NTU	54.9 mV	5.48 ft	150.00 ml/min
9/18/2019 8:42 AM	15:00	6.40 pH	58.41 °F	263.69 µS/cm	0.11 mg/L	0.00 NTU	51.8 mV	5.48 ft	150.00 ml/min
9/18/2019 8:45 AM	18:00	6.40 pH	58.47 °F	263.53 µS/cm	0.18 mg/L	6.50 NTU	51.5 mV	5.48 ft	150.00 ml/min
9/18/2019 8:48 AM	21:00	6.40 pH	58.49 °F	263.22 µS/cm	0.09 mg/L	0.73 NTU	46.6 mV	5.48 ft	150.00 ml/min
9/18/2019 8:51 AM	24:00	6.41 pH	58.50 °F	262.16 µS/cm	0.08 mg/L	0.00 NTU	44.5 mV	5.48 ft	150.00 ml/min
9/18/2019 8:54 AM	27:00	6.41 pH	58.50 °F	262.26 µS/cm	0.07 mg/L	1.58 NTU	43.0 mV	5.48 ft	150.00 ml/min
9/18/2019 8:57 AM	30:00	6.41 pH	58.49 °F	261.20 µS/cm	0.06 mg/L	0.00 NTU	42.3 mV	5.48 ft	150.00 ml/min
9/18/2019 9:00 AM	33:00	6.41 pH	58.50 °F	261.57 µS/cm	0.06 mg/L	0.00 NTU	41.5 mV	5.48 ft	150.00 ml/min
9/18/2019 9:03 AM	36:00	6.41 pH	58.55 °F	260.92 µS/cm	0.06 mg/L	0.00 NTU	40.8 mV	5.48 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-502	Sample Time: 0905 Final DTW: 5.73 ft btoc Final RDO: 0.06 mg/L
DUP-2	

Low-Flow Test Report:

Test Date / Time: 9/18/2019 8:31:25 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

Location Name: MW-8R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.11 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 4950 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

MS/MSD

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 8:31 AM	00:00	7.28 pH	59.20 °F	1,043.2 µS/cm	4.94 mg/L	65.98 NTU	-1.2 mV	8.11 ft	150.00 ml/min
9/18/2019 8:34 AM	03:00	6.97 pH	60.12 °F	697.71 µS/cm	0.45 mg/L	1.93 NTU	3.6 mV	8.11 ft	150.00 ml/min
9/18/2019 8:37 AM	06:00	6.94 pH	60.38 °F	690.59 µS/cm	0.26 mg/L	0.00 NTU	-4.0 mV	8.11 ft	150.00 ml/min
9/18/2019 8:40 AM	09:00	6.93 pH	60.49 °F	679.62 µS/cm	0.23 mg/L	0.00 NTU	-16.0 mV	8.11 ft	150.00 ml/min
9/18/2019 8:43 AM	12:00	6.93 pH	60.52 °F	714.63 µS/cm	0.33 mg/L	0.10 NTU	-25.3 mV	8.11 ft	150.00 ml/min
9/18/2019 8:46 AM	15:00	6.91 pH	60.52 °F	726.71 µS/cm	0.23 mg/L	0.00 NTU	-33.2 mV	8.11 ft	150.00 ml/min
9/18/2019 8:49 AM	18:00	6.91 pH	60.58 °F	723.61 µS/cm	0.23 mg/L	0.00 NTU	-42.2 mV	8.11 ft	150.00 ml/min
9/18/2019 8:52 AM	21:00	6.91 pH	60.64 °F	723.63 µS/cm	0.24 mg/L	0.00 NTU	-46.9 mV	8.11 ft	150.00 ml/min
9/18/2019 8:55 AM	24:00	6.90 pH	60.67 °F	721.59 µS/cm	0.19 mg/L	0.00 NTU	-52.7 mV	8.11 ft	150.00 ml/min
9/18/2019 8:58 AM	27:00	6.90 pH	60.70 °F	721.84 µS/cm	0.23 mg/L	0.00 NTU	-57.3 mV	8.11 ft	150.00 ml/min
9/18/2019 9:01 AM	30:00	6.90 pH	60.70 °F	721.73 µS/cm	0.23 mg/L	0.00 NTU	-61.7 mV	8.11 ft	150.00 ml/min
9/18/2019 9:04 AM	33:00	6.89 pH	60.71 °F	720.64 µS/cm	0.20 mg/L	0.00 NTU	-65.0 mV	8.11 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-8R	Sample Time: 0910 Final DTW: 8.11 MS/MSD
MW-8R-MS	Sample Time: 0911
MW-8R-MSD	Sample Time: 0912

Low-Flow Test Report:

Test Date / Time: 9/18/2019 8:35:15 AM

Project: Edmonds Terminal 3Q19 (3)

Operator Name: BT

<p>Location Name: MW-515 Well Diameter: 2 ft Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.94 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

RDO did not stabilize after 45 min

Weather Conditions:

Partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 8:35 AM	00:00	6.31 pH	62.01 °F	14,970 µS/cm	1.11 mg/L		41.0 mV	4.94 ft	130.00 ml/min
9/18/2019 8:38 AM	03:00	6.29 pH	63.55 °F	14,582 µS/cm	0.52 mg/L	0.00 NTU	41.9 mV	4.94 ft	130.00 ml/min
9/18/2019 8:41 AM	06:00	6.27 pH	64.05 °F	14,847 µS/cm	0.53 mg/L	0.00 NTU	40.4 mV	4.94 ft	130.00 ml/min
9/18/2019 8:44 AM	09:00	6.27 pH	64.48 °F	14,431 µS/cm	0.30 mg/L	0.00 NTU	37.9 mV	4.94 ft	130.00 ml/min
9/18/2019 8:47 AM	12:00	6.27 pH	64.60 °F	14,989 µS/cm	0.51 mg/L		36.4 mV	4.94 ft	130.00 ml/min
9/18/2019 8:50 AM	15:00	6.26 pH	64.94 °F	14,842 µS/cm	0.44 mg/L		35.5 mV	4.94 ft	130.00 ml/min
9/18/2019 8:53 AM	18:00	6.26 pH	65.19 °F	14,510 µS/cm	0.38 mg/L		34.2 mV	4.94 ft	130.00 ml/min
9/18/2019 8:56 AM	21:00	6.26 pH	65.40 °F	14,379 µS/cm	0.19 mg/L		33.8 mV	4.94 ft	130.00 ml/min
9/18/2019 8:59 AM	24:00	6.26 pH	65.39 °F	14,715 µS/cm	0.16 mg/L		35.5 mV	4.94 ft	130.00 ml/min
9/18/2019 9:02 AM	27:00	6.26 pH	65.45 °F	14,478 µS/cm	0.29 mg/L		35.4 mV	4.94 ft	130.00 ml/min
9/18/2019 9:05 AM	30:00	6.26 pH	65.53 °F	14,634 µS/cm	0.21 mg/L		34.0 mV	4.94 ft	130.00 ml/min
9/18/2019 9:08 AM	33:00	6.26 pH	65.72 °F	14,377 µS/cm	0.13 mg/L		34.0 mV	4.94 ft	130.00 ml/min
9/18/2019 9:11 AM	36:00	6.26 pH	65.74 °F	14,333 µS/cm	0.11 mg/L		35.4 mV	4.94 ft	130.00 ml/min

9/18/2019 9:14 AM	39:00	6.25 pH	65.88 °F	14,372 µS/cm	0.15 mg/L		34.4 mV	4.94 ft	130.00 ml/min
9/18/2019 9:17 AM	42:00	6.25 pH	65.92 °F	14,390 µS/cm	0.13 mg/L		33.8 mV	4.94 ft	130.00 ml/min
9/18/2019 9:20 AM	45:00	6.25 pH	65.98 °F	14,410 µS/cm	0.11 mg/L		34.1 mV	4.94 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-515	<p>Sample time 0925 Final DTW 4.95</p> <p>NOTE: RDO did not stabilize after 45 min purging</p>

Low-Flow Test Report:

Test Date / Time: 9/18/2019 9:41:36 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-503 Latitude: 47.8060240494841 Longitude: -122.388601228595 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.12 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
 Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/18/2019 9:41 AM	00:00	6.50 pH	60.32 °F	442.41 µS/cm	3.53 mg/L	0.00 NTU	6.1 mV	5.12 ft	150.00 ml/min
9/18/2019 9:44 AM	03:00	6.51 pH	60.73 °F	455.21 µS/cm	0.40 mg/L	2.77 NTU	-22.4 mV	5.12 ft	150.00 ml/min
9/18/2019 9:47 AM	06:00	6.48 pH	60.77 °F	447.68 µS/cm	0.21 mg/L	4.51 NTU	-27.8 mV	5.12 ft	150.00 ml/min
9/18/2019 9:50 AM	09:00	6.49 pH	60.82 °F	444.92 µS/cm	0.18 mg/L	6.67 NTU	-32.0 mV	5.12 ft	150.00 ml/min
9/18/2019 9:53 AM	12:00	6.48 pH	60.90 °F	444.74 µS/cm	0.37 mg/L	7.26 NTU	-33.2 mV	5.12 ft	150.00 ml/min
9/18/2019 9:56 AM	15:00	6.49 pH	60.89 °F	444.41 µS/cm	0.23 mg/L	6.56 NTU	-35.5 mV	5.12 ft	150.00 ml/min
9/18/2019 9:59 AM	18:00	6.48 pH	60.90 °F	444.14 µS/cm	0.26 mg/L	7.69 NTU	-35.2 mV	5.12 ft	150.00 ml/min
9/18/2019 10:02 AM	21:00	6.48 pH	60.95 °F	444.26 µS/cm	0.30 mg/L	5.67 NTU	-35.2 mV	5.12 ft	150.00 ml/min
9/18/2019 10:05 AM	24:00	6.48 pH	61.03 °F	444.21 µS/cm	0.34 mg/L	7.05 NTU	-34.5 mV	5.12 ft	150.00 ml/min
9/18/2019 10:08 AM	27:00	6.48 pH	61.12 °F	444.47 µS/cm	0.38 mg/L	7.01 NTU	-34.0 mV	5.12 ft	150.00 ml/min
9/18/2019 10:11 AM	30:00	6.47 pH	62.01 °F	446.26 µS/cm	0.75 mg/L	9.76 NTU	-32.7 mV	5.12 ft	150.00 ml/min
9/18/2019 10:14 AM	33:00	6.47 pH	61.44 °F	446.18 µS/cm	0.20 mg/L	10.90 NTU	-37.2 mV	5.12 ft	150.00 ml/min
9/18/2019 10:17 AM	36:00	6.47 pH	61.40 °F	446.07 µS/cm	0.15 mg/L	10.33 NTU	-40.1 mV	5.12 ft	150.00 ml/min

9/18/2019 10:20 AM	39:00	6.47 pH	61.45 °F	445.76 µS/cm	0.14 mg/L	10.82 NTU	-41.8 mV	5.12 ft	150.00 ml/min
9/18/2019 10:23 AM	42:00	6.47 pH	61.55 °F	446.88 µS/cm	0.21 mg/L	10.87 NTU	-39.9 mV	5.12 ft	150.00 ml/min
9/18/2019 10:26 AM	45:00	6.47 pH	61.69 °F	446.83 µS/cm	0.29 mg/L	11.08 NTU	-40.5 mV	5.12 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-503	Sample Time: 1030 Final DTW: 5.22 ft btoc Final RDO: 0.29 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 9:52:14 AM

Project: Edmonds Terminal 3Q19 (4)

Operator Name: BT

<p>Location Name: MW-516 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.59 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 9:52 AM	00:00	6.28 pH	66.82 °F	9.92 µS/cm	3.34 mg/L		68.6 mV	4.59 ft	130.00 ml/min
9/18/2019 9:55 AM	03:00	6.23 pH	66.47 °F	10.02 µS/cm	1.75 mg/L		70.0 mV	4.59 ft	130.00 ml/min
9/18/2019 9:58 AM	06:00	6.22 pH	66.55 °F	9.98 µS/cm	1.43 mg/L		69.5 mV	4.59 ft	130.00 ml/min
9/18/2019 10:01 AM	09:00	6.22 pH	66.80 °F	9.92 µS/cm	1.19 mg/L		69.6 mV	4.59 ft	130.00 ml/min
9/18/2019 10:04 AM	12:00	6.22 pH	66.98 °F	9.88 µS/cm	1.13 mg/L		74.1 mV	4.59 ft	130.00 ml/min
9/18/2019 10:07 AM	15:00	6.21 pH	67.12 °F	9.84 µS/cm	0.89 mg/L		84.1 mV	4.59 ft	130.00 ml/min
9/18/2019 10:10 AM	18:00	6.21 pH	67.22 °F	9.81 µS/cm	0.86 mg/L		81.2 mV	4.59 ft	130.00 ml/min
9/18/2019 10:13 AM	21:00	6.22 pH	67.40 °F	9.79 µS/cm	0.49 mg/L		79.5 mV	4.59 ft	130.00 ml/min
9/18/2019 10:16 AM	24:00	6.23 pH	67.52 °F	9.78 µS/cm	0.41 mg/L		78.3 mV	4.59 ft	130.00 ml/min
9/18/2019 10:19 AM	27:00	6.23 pH	67.77 °F	9.76 µS/cm	0.32 mg/L		70.3 mV	4.59 ft	130.00 ml/min
9/18/2019 10:22 AM	30:00	6.23 pH	67.92 °F	9.73 µS/cm	0.30 mg/L		64.6 mV	4.59 ft	130.00 ml/min
9/18/2019 10:25 AM	33:00	6.23 pH	68.04 °F	9.73 µS/cm	0.30 mg/L		60.7 mV	4.59 ft	130.00 ml/min
9/18/2019 10:28 AM	36:00	6.23 pH	68.17 °F	9.72 µS/cm	0.28 mg/L		53.9 mV	4.59 ft	130.00 ml/min

9/18/2019 10:31 AM	39:00	6.21 pH	68.32 °F	9.71 µS/cm	0.22 mg/L		42.6 mV	4.59 ft	130.00 ml/min
9/18/2019 10:34 AM	42:00	6.21 pH	68.46 °F	9.68 µS/cm	0.17 mg/L		29.6 mV	4.59 ft	130.00 ml/min
9/18/2019 10:37 AM	45:00	6.21 pH	68.64 °F	9.67 µS/cm	0.19 mg/L		14.3 mV	4.59 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-516	<p>Sample time 1045 Final DTW 4.60</p> <p>NOTE: RDO and ORP did bit stabilize after 45 min</p>

Low-Flow Test Report:

Test Date / Time: 9/18/2019 9:52:49 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-20R Well Diameter: 1 in Casing Type: PVC Screen Length: 10.5 ft Top of Screen: 4 ft Total Depth: 14.5 ft Initial Depth to Water: 6.19 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2700 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.06 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 9:52 AM	00:00	6.44 pH	62.04 °F	16,731 µS/cm	4.26 mg/L	34.31 NTU	23.5 mV	6.19 ft	150.00 ml/min
9/18/2019 9:55 AM	03:00	6.57 pH	60.56 °F	25,417 µS/cm	0.49 mg/L	0.87 NTU	-79.3 mV	6.19 ft	150.00 ml/min
9/18/2019 9:58 AM	06:00	6.68 pH	60.10 °F	29,392 µS/cm	0.26 mg/L	0.06 NTU	-160.8 mV	6.19 ft	150.00 ml/min
9/18/2019 10:01 AM	09:00	6.70 pH	59.84 °F	29,773 µS/cm	0.21 mg/L	0.00 NTU	-174.3 mV	6.19 ft	150.00 ml/min
9/18/2019 10:04 AM	12:00	6.68 pH	59.72 °F	29,628 µS/cm	0.17 mg/L	0.00 NTU	-173.7 mV	6.19 ft	150.00 ml/min
9/18/2019 10:07 AM	15:00	6.69 pH	59.60 °F	29,728 µS/cm	0.17 mg/L	0.00 NTU	-174.5 mV	6.19 ft	150.00 ml/min
9/18/2019 10:10 AM	18:00	6.69 pH	59.53 °F	29,825 µS/cm	0.16 mg/L	0.00 NTU	-176.2 mV	6.19 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-20R	Sample Time: 1020 Final DTW: 6.25

Low-Flow Test Report:

Test Date / Time: 9/18/2019 9:58:20 AM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

<p>Location Name: MW-522 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.12 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 7317.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.2 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050</p>
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Test Notes:

Weather Conditions:

Raining

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/18/2019 9:58 AM	00:00	6.96 pH	59.45 °F	865.47 µS/cm	3.57 mg/L	45.78 NTU	225.4 mV	8.12 ft	150.00 ml/min
9/18/2019 10:01 AM	03:00	6.63 pH	59.22 °F	861.22 µS/cm	0.98 mg/L	0.00 NTU	125.3 mV	8.12 ft	150.00 ml/min
9/18/2019 10:04 AM	06:00	6.64 pH	59.17 °F	855.31 µS/cm	0.82 mg/L	0.00 NTU	105.8 mV	8.12 ft	150.00 ml/min
9/18/2019 10:07 AM	09:00	6.65 pH	59.18 °F	854.92 µS/cm	0.64 mg/L	0.00 NTU	93.9 mV	8.12 ft	150.00 ml/min
9/18/2019 10:10 AM	12:00	6.66 pH	59.21 °F	854.76 µS/cm	0.68 mg/L	0.00 NTU	86.3 mV	8.12 ft	150.00 ml/min
9/18/2019 10:13 AM	15:00	6.67 pH	59.25 °F	853.83 µS/cm	0.41 mg/L	0.00 NTU	74.4 mV	8.12 ft	150.00 ml/min
9/18/2019 10:16 AM	18:00	6.67 pH	59.27 °F	853.97 µS/cm	0.37 mg/L	0.00 NTU	67.1 mV	8.12 ft	150.00 ml/min
9/18/2019 10:19 AM	21:00	6.68 pH	59.25 °F	851.26 µS/cm	0.18 mg/L	0.00 NTU	65.8 mV	8.12 ft	150.00 ml/min
9/18/2019 10:22 AM	24:00	6.68 pH	59.28 °F	849.94 µS/cm	0.23 mg/L	0.00 NTU	59.6 mV	8.12 ft	150.00 ml/min
9/18/2019 10:25 AM	27:00	6.68 pH	59.32 °F	845.47 µS/cm	0.20 mg/L	0.00 NTU	57.0 mV	8.12 ft	150.00 ml/min
9/18/2019 10:28 AM	30:00	6.69 pH	59.39 °F	846.71 µS/cm	0.19 mg/L	0.00 NTU	53.5 mV	8.12 ft	150.00 ml/min
9/18/2019 10:31 AM	33:00	6.68 pH	59.42 °F	850.14 µS/cm	0.43 mg/L	0.00 NTU	52.6 mV	8.12 ft	150.00 ml/min

9/18/2019 10:34 AM	36:00	6.69 pH	59.41 °F	849.39 µS/cm	0.19 mg/L	0.00 NTU	50.3 mV	8.12 ft	150.00 ml/min
9/18/2019 10:37 AM	39:00	6.69 pH	59.43 °F	850.53 µS/cm	0.25 mg/L	0.00 NTU	48.1 mV	8.12 ft	150.00 ml/min
9/18/2019 10:40 AM	42:00	6.69 pH	59.47 °F	851.89 µS/cm	0.12 mg/L	0.00 NTU	46.3 mV	8.12 ft	150.00 ml/min
9/18/2019 10:43 AM	45:00	6.69 pH	59.53 °F	849.56 µS/cm	0.10 mg/L	0.00 NTU	42.6 mV	8.12 ft	150.00 ml/min
9/18/2019 10:47 AM	48:47	6.69 pH	59.50 °F	787.44 µS/cm	0.10 mg/L	0.00 NTU	40.8 mV	8.12 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-522	Sample Time: 1050 Final DTW: 8.19 ft btoc Final RDO: 0.10 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 10:48:31 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-520 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.53 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 10:48 AM	00:00	6.94 pH	65.11 °F	1,744.4 µS/cm	3.97 mg/L	1.72 NTU	-55.2 mV	7.53 ft	150.00 ml/min
9/18/2019 10:51 AM	03:00	6.82 pH	66.41 °F	1,418.9 µS/cm	0.41 mg/L	0.48 NTU	-40.9 mV	7.53 ft	150.00 ml/min
9/18/2019 10:54 AM	06:00	6.79 pH	66.77 °F	1,396.7 µS/cm	0.24 mg/L	0.47 NTU	-43.0 mV	7.53 ft	150.00 ml/min
9/18/2019 10:57 AM	09:00	6.78 pH	66.94 °F	1,368.5 µS/cm	0.33 mg/L	1.98 NTU	-43.2 mV	7.53 ft	150.00 ml/min
9/18/2019 11:00 AM	12:00	6.77 pH	67.09 °F	1,275.3 µS/cm	0.51 mg/L	4.24 NTU	-39.0 mV	7.53 ft	150.00 ml/min
9/18/2019 11:03 AM	15:00	6.77 pH	67.18 °F	1,274.3 µS/cm	0.67 mg/L	5.81 NTU	-33.1 mV	7.53 ft	150.00 ml/min
9/18/2019 11:06 AM	18:00	6.76 pH	67.26 °F	1,269.4 µS/cm	0.76 mg/L	0.30 NTU	-26.7 mV	7.53 ft	150.00 ml/min
9/18/2019 11:09 AM	21:00	6.76 pH	67.30 °F	1,364.4 µS/cm	0.75 mg/L	1.64 NTU	-21.4 mV	7.53 ft	150.00 ml/min
9/18/2019 11:12 AM	24:00	6.75 pH	67.30 °F	1,360.1 µS/cm	0.76 mg/L	0.28 NTU	-17.1 mV	7.53 ft	150.00 ml/min
9/18/2019 11:15 AM	27:00	6.74 pH	67.42 °F	1,261.7 µS/cm	0.81 mg/L	0.00 NTU	-12.9 mV	7.53 ft	150.00 ml/min
9/18/2019 11:18 AM	30:00	6.74 pH	67.42 °F	1,265.6 µS/cm	0.74 mg/L	0.00 NTU	-9.5 mV	7.53 ft	150.00 ml/min
9/18/2019 11:21 AM	33:00	6.73 pH	67.39 °F	1,268.4 µS/cm	0.69 mg/L	0.00 NTU	-6.9 mV	7.53 ft	150.00 ml/min

9/18/2019 11:24 AM	36:00	6.73 pH	67.48 °F	1,238.7 µS/cm	0.74 mg/L	0.00 NTU	-4.1 mV	7.53 ft	150.00 ml/min
9/18/2019 11:27 AM	39:00	6.73 pH	67.55 °F	1,231.4 µS/cm	0.74 mg/L	2.46 NTU	-1.8 mV	7.53 ft	150.00 ml/min
9/18/2019 11:30 AM	42:00	6.72 pH	67.51 °F	1,344.7 µS/cm	0.75 mg/L	4.60 NTU	0.8 mV	7.53 ft	150.00 ml/min
9/18/2019 11:33 AM	45:00	6.72 pH	67.53 °F	1,357.3 µS/cm	0.73 mg/L	1.10 NTU	2.8 mV	7.53 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-520	Sample Time: 1145 Final DTW: 7.53

Low-Flow Test Report:

Test Date / Time: 9/18/2019 10:56:48 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-504 Latitude: 47.80625734141 Longitude: -122.388615980744 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.62 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2.5 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/18/2019 10:56 AM	00:00	6.52 pH	64.78 °F	23,286 µS/cm	3.23 mg/L	11.87 NTU	-11.6 mV	6.62 ft	150.00 ml/min
9/18/2019 10:59 AM	03:00	6.56 pH	65.92 °F	28,243 µS/cm	0.43 mg/L	13.37 NTU	-26.7 mV	6.62 ft	150.00 ml/min
9/18/2019 11:02 AM	06:00	6.56 pH	66.58 °F	27,633 µS/cm	0.35 mg/L	12.84 NTU	-28.7 mV	6.62 ft	150.00 ml/min
9/18/2019 11:05 AM	09:00	6.54 pH	66.83 °F	25,426 µS/cm	0.37 mg/L	11.46 NTU	-26.4 mV	6.62 ft	150.00 ml/min
9/18/2019 11:08 AM	12:00	6.52 pH	66.77 °F	21,389 µS/cm	0.42 mg/L	12.17 NTU	-19.9 mV	6.62 ft	150.00 ml/min
9/18/2019 11:11 AM	15:00	6.53 pH	66.85 °F	19,012 µS/cm	0.48 mg/L	11.63 NTU	-14.2 mV	6.62 ft	150.00 ml/min
9/18/2019 11:14 AM	18:00	6.53 pH	67.11 °F	18,087 µS/cm	0.62 mg/L	9.15 NTU	-12.4 mV	6.62 ft	150.00 ml/min
9/18/2019 11:17 AM	21:00	6.54 pH	67.13 °F	17,720 µS/cm	0.59 mg/L	11.45 NTU	-11.5 mV	6.62 ft	150.00 ml/min
9/18/2019 11:20 AM	24:00	6.54 pH	67.08 °F	17,629 µS/cm	0.62 mg/L	11.24 NTU	-10.9 mV	6.62 ft	150.00 ml/min
9/18/2019 11:23 AM	26:45	6.54 pH	67.12 °F	17,660 µS/cm	0.59 mg/L	10.80 NTU	-13.2 mV	6.62 ft	150.00 ml/min
9/18/2019 11:23 AM	27:06	6.54 pH	67.14 °F	17,702 µS/cm	0.64 mg/L	11.48 NTU	-11.9 mV	6.62 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-504	Sample Time: 1125 Final DTW: 6.62 ft btoc Final RDO: 0.62 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 11:14:40 AM

Project: Edmonds Terminal 3Q19 (5)

Operator Name: BT

<p>Location Name: MW-517</p> <p>Well Diameter: 2 in</p> <p>Casing Type: PVC</p> <p>Screen Length: 10 ft</p> <p>Top of Screen: 3 ft</p> <p>Total Depth: 13 ft</p> <p>Initial Depth to Water: 5.33 ft</p>	<p>Pump Type: Geotech geopump series 2</p> <p>Tubing Type: 0.170" x1/4"</p> <p>Pump Intake From TOC: 7.5 ft</p> <p>Estimated Total Volume Pumped: 5850 ml</p> <p>Flow Cell Volume: 130 ml</p> <p>Final Flow Rate: 130 ml/min</p> <p>Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented</p> <p>Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Partly sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 11:14 AM	00:00	6.26 pH	75.02 °F	20,485 µS/cm	6.23 mg/L		68.5 mV	5.33 ft	130.00 ml/min
9/18/2019 11:17 AM	03:00	6.11 pH	69.22 °F	22,680 µS/cm	0.39 mg/L	0.86 NTU	79.1 mV	5.33 ft	130.00 ml/min
9/18/2019 11:20 AM	06:00	6.13 pH	68.99 °F	21,315 µS/cm	0.09 mg/L	5.09 NTU	79.4 mV	5.33 ft	130.00 ml/min
9/18/2019 11:23 AM	09:00	6.14 pH	68.96 °F	19,920 µS/cm	0.04 mg/L	6.18 NTU	77.1 mV	5.33 ft	130.00 ml/min
9/18/2019 11:26 AM	12:00	6.16 pH	68.94 °F	19,029 µS/cm	0.03 mg/L	9.97 NTU	68.1 mV	5.33 ft	130.00 ml/min
9/18/2019 11:29 AM	15:00	6.17 pH	68.93 °F	18,417 µS/cm	0.04 mg/L	11.66 NTU	48.7 mV	5.33 ft	130.00 ml/min
9/18/2019 11:32 AM	18:00	6.17 pH	68.93 °F	18,260 µS/cm	0.07 mg/L	15.41 NTU	29.1 mV	5.33 ft	130.00 ml/min
9/18/2019 11:35 AM	21:00	6.17 pH	68.99 °F	18,355 µS/cm	0.06 mg/L	18.08 NTU	21.3 mV	5.33 ft	130.00 ml/min
9/18/2019 11:38 AM	24:00	6.17 pH	69.30 °F	18,132 µS/cm	0.08 mg/L	20.03 NTU	17.9 mV	5.33 ft	130.00 ml/min
9/18/2019 11:41 AM	27:00	6.17 pH	69.41 °F	18,066 µS/cm	0.10 mg/L	24.92 NTU	11.1 mV	5.33 ft	130.00 ml/min
9/18/2019 11:44 AM	30:00	6.17 pH	69.73 °F	18,008 µS/cm	0.12 mg/L	28.70 NTU	5.5 mV	5.33 ft	130.00 ml/min
9/18/2019 11:47 AM	33:00	6.17 pH	70.00 °F	18,127 µS/cm	0.14 mg/L		2.8 mV	5.33 ft	130.00 ml/min
9/18/2019 11:50 AM	36:00	6.16 pH	70.11 °F	18,480 µS/cm	0.14 mg/L		2.7 mV	5.33 ft	130.00 ml/min

9/18/2019 11:53 AM	39:00	6.16 pH	70.03 °F	18,808 µS/cm	0.13 mg/L		3.3 mV	5.33 ft	130.00 ml/min
9/18/2019 11:56 AM	42:00	6.16 pH	70.09 °F	18,643 µS/cm	0.15 mg/L		2.8 mV	5.33 ft	130.00 ml/min
9/18/2019 11:59 AM	45:00	6.17 pH	70.40 °F	18,222 µS/cm	0.15 mg/L		1.6 mV	5.33 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-517	SAMPLE TIME 1210 Final DTW 5.33

Low-Flow Test Report:

Test Date / Time: 9/18/2019 11:34:40 AM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

Location Name: MW-526 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.53 ft	Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 9.5 ft Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.44 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050
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Test Notes:

Weather Conditions:

60, raining

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/18/2019 11:34 AM	00:00	6.10 pH	63.15 °F	178.59 µS/cm	2.25 mg/L	171.75 NTU	210.2 mV	5.53 ft	150.00 ml/min
9/18/2019 11:37 AM	03:00	6.00 pH	64.15 °F	197.10 µS/cm	1.32 mg/L	223.74 NTU	170.8 mV	5.53 ft	150.00 ml/min
9/18/2019 11:40 AM	06:00	5.92 pH	64.48 °F	208.25 µS/cm	1.02 mg/L	261.33 NTU	164.5 mV	5.53 ft	150.00 ml/min
9/18/2019 11:43 AM	09:00	5.97 pH	64.61 °F	219.62 µS/cm	0.77 mg/L	283.80 NTU	157.9 mV	5.53 ft	150.00 ml/min
9/18/2019 11:46 AM	12:00	5.98 pH	64.48 °F	237.51 µS/cm	0.56 mg/L	301.72 NTU	149.7 mV	5.53 ft	150.00 ml/min
9/18/2019 11:49 AM	15:00	5.99 pH	64.45 °F	241.88 µS/cm	0.49 mg/L	304.59 NTU	146.1 mV	5.53 ft	150.00 ml/min
9/18/2019 11:52 AM	18:00	5.98 pH	64.53 °F	248.53 µS/cm	0.40 mg/L	301.17 NTU	143.9 mV	5.53 ft	150.00 ml/min
9/18/2019 11:55 AM	21:00	5.99 pH	64.63 °F	258.10 µS/cm	0.32 mg/L	309.93 NTU	140.4 mV	5.53 ft	150.00 ml/min
9/18/2019 11:58 AM	24:00	5.99 pH	64.67 °F	263.44 µS/cm	0.31 mg/L	318.63 NTU	139.1 mV	5.53 ft	150.00 ml/min
9/18/2019 12:01 PM	27:00	5.99 pH	64.63 °F	264.55 µS/cm	0.29 mg/L	320.69 NTU	136.5 mV	5.53 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-526	Sample Time: 1210 Final DTW: 5.99 ft btoc Final RDO: 0.28 mg/L

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 9/18/2019 11:53:42 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-521 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.42 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2330 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Sunny

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 11:53 AM	00:00	6.81 pH	68.42 °F	467.64 µS/cm	8.05 mg/L	0.66 NTU	24.2 mV	6.42 ft	150.00 ml/min
9/18/2019 11:54 AM	00:32	6.63 pH	68.40 °F	473.54 µS/cm	7.13 mg/L	0.00 NTU	33.6 mV	6.42 ft	150.00 ml/min
9/18/2019 11:57 AM	03:32	6.55 pH	68.20 °F	528.26 µS/cm	5.47 mg/L	0.00 NTU	60.4 mV	6.42 ft	150.00 ml/min
9/18/2019 12:00 PM	06:32	6.58 pH	68.25 °F	624.63 µS/cm	4.50 mg/L	0.00 NTU	69.2 mV	6.42 ft	150.00 ml/min
9/18/2019 12:03 PM	09:32	6.61 pH	68.23 °F	676.73 µS/cm	3.98 mg/L	0.00 NTU	72.9 mV	6.42 ft	150.00 ml/min
9/18/2019 12:06 PM	12:32	6.62 pH	68.17 °F	711.98 µS/cm	3.79 mg/L	0.00 NTU	75.8 mV	6.42 ft	150.00 ml/min
9/18/2019 12:09 PM	15:32	6.63 pH	68.19 °F	731.46 µS/cm	3.68 mg/L	0.00 NTU	77.7 mV	6.42 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-521	Sample Time: 1220 Final DTW: 6.43

Low-Flow Test Report:

Test Date / Time: 9/18/2019 12:00:37 PM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-505 Latitude: 47.8063145383053 Longitude: -122.388912700117 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.71 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/18/2019 12:00 PM	00:00	6.68 pH	66.98 °F	890.33 µS/cm	1.44 mg/L	0.00 NTU	-55.6 mV	4.71 ft	150.00 ml/min
9/18/2019 12:03 PM	03:00	6.58 pH	66.30 °F	826.28 µS/cm	0.19 mg/L	2.98 NTU	-63.5 mV	4.71 ft	150.00 ml/min
9/18/2019 12:06 PM	06:00	6.56 pH	66.40 °F	1,672.6 µS/cm	0.14 mg/L	0.95 NTU	-67.4 mV	4.71 ft	150.00 ml/min
9/18/2019 12:09 PM	09:00	6.56 pH	66.20 °F	3,120.0 µS/cm	0.08 mg/L	6.10 NTU	-68.6 mV	4.71 ft	150.00 ml/min
9/18/2019 12:12 PM	12:00	6.55 pH	66.22 °F	4,966.4 µS/cm	0.08 mg/L	0.00 NTU	-69.1 mV	4.71 ft	150.00 ml/min
9/18/2019 12:15 PM	15:00	6.54 pH	66.21 °F	6,513.9 µS/cm	0.08 mg/L	5.98 NTU	-70.3 mV	4.71 ft	150.00 ml/min
9/18/2019 12:18 PM	18:00	6.54 pH	66.12 °F	8,011.6 µS/cm	0.06 mg/L	5.06 NTU	-71.3 mV	4.71 ft	150.00 ml/min
9/18/2019 12:21 PM	21:00	6.54 pH	66.14 °F	9,182.3 µS/cm	0.06 mg/L	6.29 NTU	-71.8 mV	4.71 ft	150.00 ml/min
9/18/2019 12:24 PM	24:00	6.55 pH	66.24 °F	10,376 µS/cm	0.06 mg/L	7.24 NTU	-72.3 mV	4.71 ft	150.00 ml/min
9/18/2019 12:27 PM	27:00	6.55 pH	66.29 °F	11,627 µS/cm	0.06 mg/L	6.92 NTU	-73.3 mV	4.71 ft	150.00 ml/min
9/18/2019 12:30 PM	30:00	6.54 pH	66.12 °F	12,367 µS/cm	0.05 mg/L	7.05 NTU	-74.2 mV	4.71 ft	150.00 ml/min
9/18/2019 12:33 PM	33:00	6.54 pH	66.19 °F	13,603 µS/cm	0.05 mg/L	8.13 NTU	-75.0 mV	4.71 ft	150.00 ml/min
9/18/2019 12:36 PM	36:00	6.55 pH	66.15 °F	13,929 µS/cm	0.05 mg/L	5.23 NTU	-76.4 mV	4.71 ft	150.00 ml/min

9/18/2019 12:39 PM	39:00	6.55 pH	66.23 °F	14,648 µS/cm	0.05 mg/L	7.93 NTU	-77.0 mV	4.71 ft	150.00 ml/min
9/18/2019 12:40 PM	39:35	6.55 pH	66.22 °F	14,498 µS/cm	0.04 mg/L	7.94 NTU	-77.5 mV	4.71 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-505	Sample Time: 1240 Final DTW: 4.75 ft btoc Final RDO: 0.05 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 12:51:19 PM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

<p>Location Name: MW-535 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 9.01 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 1760 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.05 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050</p>
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Test Notes:

Weather Conditions:

60, raining

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/18/2019 12:51 PM	00:00	6.38 pH	62.14 °F	38,776 µS/cm	6.28 mg/L	16.22 NTU	286.8 mV	9.01 ft	150.00 ml/min
9/18/2019 12:54 PM	03:00	7.01 pH	61.41 °F	38,789 µS/cm	4.96 mg/L	0.00 NTU	271.3 mV	9.01 ft	150.00 ml/min
9/18/2019 12:57 PM	06:00	7.05 pH	61.28 °F	38,814 µS/cm	4.92 mg/L	0.00 NTU	261.7 mV	9.01 ft	150.00 ml/min
9/18/2019 1:00 PM	09:00	7.07 pH	61.20 °F	38,888 µS/cm	4.89 mg/L	0.00 NTU	258.5 mV	9.01 ft	150.00 ml/min
9/18/2019 1:03 PM	11:44	7.08 pH	61.11 °F	38,895 µS/cm	4.90 mg/L	0.00 NTU	262.3 mV	9.01 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-535	Sample Time: 1310 Final DTW: 5.95 ft btoc Final RDO: 4.80 mg/L

Low-Flow Test Report:

Test Date / Time: 9/18/2019 12:58:04 PM

Project: Edmonds Terminal 3Q19 (6)

Operator Name: BT

<p>Location Name: MW-513 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 4.41 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 4290 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/18/2019 12:58 PM	00:00	6.44 pH	77.40 °F	15,776 µS/cm	5.39 mg/L		28.0 mV	4.41 ft	130.00 ml/min
9/18/2019 1:01 PM	03:00	6.44 pH	68.43 °F	16,838 µS/cm	0.58 mg/L		-38.1 mV	4.41 ft	130.00 ml/min
9/18/2019 1:04 PM	06:00	6.44 pH	67.05 °F	17,414 µS/cm	0.28 mg/L		-55.2 mV	4.41 ft	130.00 ml/min
9/18/2019 1:07 PM	09:00	6.43 pH	66.72 °F	17,763 µS/cm	0.15 mg/L		-64.7 mV	4.41 ft	130.00 ml/min
9/18/2019 1:10 PM	12:00	6.43 pH	66.05 °F	18,114 µS/cm	0.16 mg/L		-70.9 mV	4.41 ft	130.00 ml/min
9/18/2019 1:13 PM	15:00	6.43 pH	65.75 °F	18,246 µS/cm	0.09 mg/L		-76.0 mV	4.41 ft	130.00 ml/min
9/18/2019 1:16 PM	18:00	6.43 pH	65.48 °F	18,388 µS/cm	0.06 mg/L		-78.7 mV	4.41 ft	130.00 ml/min
9/18/2019 1:19 PM	21:00	6.43 pH	65.24 °F	18,372 µS/cm	0.02 mg/L		-81.1 mV	4.41 ft	130.00 ml/min
9/18/2019 1:22 PM	24:00	6.43 pH	65.37 °F	18,545 µS/cm	0.01 mg/L		-82.6 mV	4.41 ft	130.00 ml/min
9/18/2019 1:25 PM	27:00	6.43 pH	65.30 °F	18,296 µS/cm	0.00 mg/L		-83.7 mV	4.41 ft	130.00 ml/min
9/18/2019 1:28 PM	30:00	6.42 pH	65.43 °F	18,277 µS/cm	0.00 mg/L		-84.3 mV	4.41 ft	130.00 ml/min
9/18/2019 1:31 PM	33:00	6.42 pH	65.19 °F	18,396 µS/cm	0.00 mg/L		-85.1 mV	4.41 ft	130.00 ml/min

Samples

Sample ID:	Description:
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MW-513

SAMPLE TIME 1340
Final DTW 4.44

Low-Flow Test Report:

Test Date / Time: 9/19/2019 8:03:41 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

<p>Location Name: MW-506 Latitude: 47.8063870476646 Longitude: -122.388542555273 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.72 ft</p>	<p>Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 3 gal Flow Cell Volume: 130 ml Final Flow Rate: 200 ml/min Final Draw Down: 0.08 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545</p>
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Test Notes:

Weather Conditions:
 Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/19/2019 8:03 AM	00:00	6.65 pH	61.31 °F	8,774.5 µS/cm	4.55 mg/L	0.60 NTU	-71.8 mV	6.72 ft	150.00 ml/min
9/19/2019 8:06 AM	03:00	6.66 pH	62.08 °F	8,125.4 µS/cm	0.34 mg/L	0.00 NTU	-105.9 mV	6.72 ft	150.00 ml/min
9/19/2019 8:09 AM	06:00	6.69 pH	62.39 °F	7,175.8 µS/cm	0.25 mg/L	3.77 NTU	-109.7 mV	6.72 ft	150.00 ml/min
9/19/2019 8:12 AM	09:00	6.69 pH	62.75 °F	6,564.1 µS/cm	0.30 mg/L	4.86 NTU	-107.9 mV	6.72 ft	150.00 ml/min
9/19/2019 8:15 AM	12:00	6.68 pH	62.72 °F	6,315.8 µS/cm	0.22 mg/L	8.16 NTU	-110.1 mV	6.72 ft	150.00 ml/min
9/19/2019 8:18 AM	15:00	6.68 pH	62.93 °F	5,932.1 µS/cm	0.10 mg/L	3.85 NTU	-112.8 mV	6.72 ft	150.00 ml/min
9/19/2019 8:21 AM	18:00	6.68 pH	63.09 °F	5,566.4 µS/cm	0.08 mg/L	3.97 NTU	-114.0 mV	6.72 ft	150.00 ml/min
9/19/2019 8:24 AM	21:00	6.68 pH	63.21 °F	5,329.8 µS/cm	0.17 mg/L	6.99 NTU	-114.1 mV	6.72 ft	150.00 ml/min
9/19/2019 8:27 AM	24:00	6.68 pH	63.22 °F	5,136.6 µS/cm	0.11 mg/L	5.61 NTU	-113.0 mV	6.72 ft	150.00 ml/min
9/19/2019 8:30 AM	27:00	6.68 pH	63.37 °F	5,018.5 µS/cm	0.09 mg/L	9.23 NTU	-114.1 mV	6.72 ft	150.00 ml/min
9/19/2019 8:33 AM	30:00	6.68 pH	63.53 °F	4,912.2 µS/cm	0.09 mg/L	8.24 NTU	-116.3 mV	6.72 ft	150.00 ml/min
9/19/2019 8:36 AM	33:00	6.68 pH	63.67 °F	4,890.3 µS/cm	0.16 mg/L	12.38 NTU	-116.5 mV	6.72 ft	150.00 ml/min
9/19/2019 8:39 AM	36:00	6.68 pH	63.65 °F	4,825.9 µS/cm	0.07 mg/L	14.63 NTU	-117.9 mV	6.72 ft	150.00 ml/min

9/19/2019 8:42 AM	39:00	6.68 pH	63.68 °F	4,519.0 µS/cm	0.06 mg/L	15.22 NTU	-119.6 mV	6.72 ft	150.00 ml/min
9/19/2019 8:45 AM	42:00	6.66 pH	63.70 °F	5,079.8 µS/cm	0.18 mg/L	15.35 NTU	-117.3 mV	6.72 ft	150.00 ml/min
9/19/2019 8:48 AM	45:00	6.67 pH	63.76 °F	4,808.3 µS/cm	0.13 mg/L	15.14 NTU	-119.6 mV	6.72 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-506	<p>Sample Time: 0850 Final DTW: 6.80 ft btoc Final RDO: 0.13 mg/L</p> <p>Conductivity/RDO did not stabilize after 45 minutes.</p>

Low-Flow Test Report:

Test Date / Time: 9/19/2019 8:10:00 AM

Project: Edmonds Terminal 3Q19 (7)

Operator Name: BT

<p>Location Name: MW-514 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.73 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 3120 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 8:10 AM	00:00	6.36 pH	59.44 °F	13,167 µS/cm	1.58 mg/L	1.07 NTU	12.0 mV	5.73 ft	130.00 ml/min
9/19/2019 8:13 AM	03:00	6.35 pH	60.99 °F	12,617 µS/cm	0.52 mg/L	1.83 NTU	0.4 mV	5.73 ft	130.00 ml/min
9/19/2019 8:16 AM	06:00	6.36 pH	61.52 °F	12,080 µS/cm	0.33 mg/L	4.88 NTU	-6.1 mV	5.73 ft	130.00 ml/min
9/19/2019 8:19 AM	09:00	6.36 pH	62.07 °F	11,928 µS/cm	0.28 mg/L	3.18 NTU	-10.3 mV	5.73 ft	130.00 ml/min
9/19/2019 8:22 AM	12:00	6.36 pH	62.29 °F	11,969 µS/cm	0.28 mg/L	7.70 NTU	-12.7 mV	5.73 ft	130.00 ml/min
9/19/2019 8:25 AM	15:00	6.36 pH	62.49 °F	11,931 µS/cm	0.20 mg/L	13.00 NTU	-14.6 mV	5.73 ft	130.00 ml/min
9/19/2019 8:28 AM	18:00	6.36 pH	62.75 °F	11,888 µS/cm	0.17 mg/L	21.92 NTU	-16.6 mV	5.73 ft	130.00 ml/min
9/19/2019 8:31 AM	21:00	6.36 pH	62.80 °F	11,980 µS/cm	0.19 mg/L	26.74 NTU	-17.9 mV	5.73 ft	130.00 ml/min
9/19/2019 8:34 AM	24:00	6.35 pH	62.86 °F	12,067 µS/cm	0.20 mg/L	35.93 NTU	-19.0 mV	5.73 ft	130.00 ml/min

Samples

Sample ID:	Description:
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MW-514

Sample time 0845

Final DTW 5.73'

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 9/19/2019 8:38:59 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-511 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.22 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 11.5 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 8:38 AM	00:00	6.59 pH	55.40 °F	290.56 µS/cm	5.25 mg/L	2.37 NTU	55.0 mV	8.22 ft	150.00 ml/min
9/19/2019 8:41 AM	03:00	6.32 pH	55.97 °F	278.68 µS/cm	2.49 mg/L	1.27 NTU	72.6 mV	8.22 ft	150.00 ml/min
9/19/2019 8:44 AM	06:00	6.28 pH	56.18 °F	279.09 µS/cm	2.12 mg/L	0.69 NTU	84.0 mV	8.22 ft	150.00 ml/min
9/19/2019 8:47 AM	09:00	6.28 pH	56.30 °F	279.94 µS/cm	1.57 mg/L	0.24 NTU	90.7 mV	8.22 ft	150.00 ml/min
9/19/2019 8:50 AM	12:00	6.28 pH	56.31 °F	282.70 µS/cm	1.53 mg/L	0.12 NTU	95.8 mV	8.22 ft	150.00 ml/min
9/19/2019 8:53 AM	15:00	6.28 pH	56.32 °F	284.74 µS/cm	1.65 mg/L	0.00 NTU	99.8 mV	8.22 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-511	Sample Time: 0900 Final DTW: 8.23

Low-Flow Test Report:

Test Date / Time: 9/19/2019 9:12:29 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-507 Latitude: 47.8064100164468 Longitude: -122.38894186914 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.88 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 2 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.18 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/19/2019 9:12 AM	00:00	6.87 pH	64.72 °F	973.44 µS/cm	0.47 mg/L	1.21 NTU	-6.9 mV	6.88 ft	150.00 ml/min
9/19/2019 9:15 AM	03:00	6.84 pH	65.02 °F	924.97 µS/cm	0.23 mg/L	1.67 NTU	9.2 mV	6.88 ft	150.00 ml/min
9/19/2019 9:18 AM	06:00	6.83 pH	65.16 °F	897.81 µS/cm	0.17 mg/L	8.21 NTU	20.7 mV	6.88 ft	150.00 ml/min
9/19/2019 9:21 AM	09:00	6.83 pH	65.32 °F	865.33 µS/cm	0.14 mg/L	7.49 NTU	28.2 mV	6.88 ft	150.00 ml/min
9/19/2019 9:24 AM	12:00	6.83 pH	65.55 °F	861.40 µS/cm	0.18 mg/L	10.93 NTU	32.7 mV	6.88 ft	150.00 ml/min
9/19/2019 9:27 AM	15:00	6.83 pH	65.83 °F	862.78 µS/cm	0.22 mg/L	11.34 NTU	34.2 mV	6.88 ft	150.00 ml/min
9/19/2019 9:30 AM	18:00	6.83 pH	65.78 °F	856.89 µS/cm	0.11 mg/L	9.67 NTU	40.3 mV	6.88 ft	150.00 ml/min
9/19/2019 9:33 AM	21:00	6.83 pH	65.51 °F	830.94 µS/cm	0.08 mg/L	8.83 NTU	44.2 mV	6.88 ft	150.00 ml/min
9/19/2019 9:36 AM	24:00	6.83 pH	65.51 °F	812.78 µS/cm	0.06 mg/L	10.98 NTU	48.1 mV	6.88 ft	150.00 ml/min
9/19/2019 9:39 AM	27:00	6.83 pH	65.56 °F	802.28 µS/cm	0.06 mg/L	11.52 NTU	51.7 mV	6.88 ft	150.00 ml/min
9/19/2019 9:42 AM	30:00	6.83 pH	65.61 °F	798.61 µS/cm	0.05 mg/L	11.04 NTU	54.1 mV	6.88 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-507	Sample Time: 0945 Final DTW: 7.06 ft btoc Final RDO: 0.06 mg/L
DUP-4	

Low-Flow Test Report:

Test Date / Time: 9/19/2019 9:16:40 AM

Project: Edmonds Terminal 3Q19 (8)

Operator Name: BT

<p>Location Name: MW-512 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.56 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 3900 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Mostly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 9:16 AM	00:00	6.57 pH	63.68 °F	10,822 µS/cm	4.03 mg/L		-33.0 mV	6.56 ft	130.00 ml/min
9/19/2019 9:19 AM	03:00	6.54 pH	64.75 °F	9,347.9 µS/cm	0.66 mg/L		-60.0 mV	6.56 ft	130.00 ml/min
9/19/2019 9:22 AM	06:00	6.53 pH	64.92 °F	8,602.4 µS/cm	0.39 mg/L		-69.7 mV	6.56 ft	130.00 ml/min
9/19/2019 9:25 AM	09:00	6.50 pH	65.14 °F	7,856.8 µS/cm	0.23 mg/L		-74.2 mV	6.56 ft	130.00 ml/min
9/19/2019 9:28 AM	12:00	6.48 pH	65.12 °F	7,784.5 µS/cm	0.17 mg/L		-74.9 mV	6.56 ft	130.00 ml/min
9/19/2019 9:31 AM	15:00	6.46 pH	65.23 °F	7,827.9 µS/cm	0.18 mg/L		-74.9 mV	6.56 ft	130.00 ml/min
9/19/2019 9:34 AM	18:00	6.44 pH	65.19 °F	8,033.9 µS/cm	0.13 mg/L		-74.5 mV	6.56 ft	130.00 ml/min
9/19/2019 9:37 AM	21:00	6.43 pH	65.14 °F	8,078.5 µS/cm	0.14 mg/L		-75.2 mV	6.56 ft	130.00 ml/min
9/19/2019 9:40 AM	24:00	6.42 pH	65.15 °F	8,065.0 µS/cm	0.11 mg/L		-75.6 mV	6.56 ft	130.00 ml/min
9/19/2019 9:43 AM	27:00	6.42 pH	65.11 °F	8,116.3 µS/cm	0.10 mg/L		-76.0 mV	6.56 ft	130.00 ml/min
9/19/2019 9:46 AM	30:00	6.41 pH	65.03 °F	8,243.1 µS/cm	0.10 mg/L		-76.0 mV	6.56 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-512	Sample time 0955 Final DTW 6.56
MW-512-MS	Sample time 0956 Final DTW 6.56
MW-512-MSD	Sample time 0957 Final DTW 6.56

Low-Flow Test Report:

Test Date / Time: 9/19/2019 9:23:58 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

<p>Location Name: MW-143 Well Diameter: 2 in Casing Type: PVC Screen Length: 10.8 ft Top of Screen: 3.5 ft Total Depth: 14.3 ft Initial Depth to Water: 5.6 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 11.5 ft Estimated Total Volume Pumped: 4950 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 9:23 AM	00:00	6.09 pH	60.33 °F	501.29 µS/cm	5.03 mg/L	24.27 NTU	-103.3 mV	5.60 ft	150.00 ml/min
9/19/2019 9:26 AM	03:00	6.05 pH	61.11 °F	499.88 µS/cm	0.42 mg/L	3.97 NTU	-144.6 mV	5.60 ft	150.00 ml/min
9/19/2019 9:29 AM	06:00	6.09 pH	61.18 °F	501.46 µS/cm	0.53 mg/L	608.80 NTU	-154.5 mV	5.60 ft	150.00 ml/min
9/19/2019 9:32 AM	09:00	6.15 pH	60.22 °F	498.13 µS/cm	0.28 mg/L	0.78 NTU	-153.1 mV	5.60 ft	150.00 ml/min
9/19/2019 9:35 AM	12:00	6.15 pH	59.70 °F	502.18 µS/cm	0.21 mg/L	0.38 NTU	-156.3 mV	5.60 ft	150.00 ml/min
9/19/2019 9:38 AM	15:00	6.17 pH	59.55 °F	501.68 µS/cm	0.16 mg/L	0.28 NTU	-157.1 mV	5.60 ft	150.00 ml/min
9/19/2019 9:41 AM	18:00	6.19 pH	59.59 °F	500.82 µS/cm	0.13 mg/L	2.63 NTU	-159.3 mV	5.60 ft	150.00 ml/min
9/19/2019 9:44 AM	21:00	6.21 pH	59.64 °F	501.22 µS/cm	0.16 mg/L	0.01 NTU	-158.8 mV	5.60 ft	150.00 ml/min
9/19/2019 9:47 AM	24:00	6.24 pH	59.60 °F	499.92 µS/cm	0.19 mg/L	0.00 NTU	-156.2 mV	5.60 ft	150.00 ml/min
9/19/2019 9:50 AM	27:00	6.25 pH	59.50 °F	502.03 µS/cm	0.24 mg/L	0.00 NTU	-151.1 mV	5.60 ft	150.00 ml/min
9/19/2019 9:53 AM	30:00	6.27 pH	59.36 °F	502.39 µS/cm	0.24 mg/L	0.00 NTU	-148.6 mV	5.60 ft	150.00 ml/min
9/19/2019 9:56 AM	33:00	6.28 pH	59.18 °F	503.17 µS/cm	0.27 mg/L	0.00 NTU	-145.5 mV	5.60 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-143	Sample Time: 1005 Final DTW: 7.72

Low-Flow Test Report:

Test Date / Time: 9/19/2019 9:29:53 AM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

<p>Location Name: MW-139R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 4.4 ft Total Depth: 14.9 ft Initial Depth to Water: 7.12 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 2250 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050</p>
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/19/2019 9:29 AM	00:00	6.92 pH	60.02 °F	39,547 µS/cm	6.35 mg/L	67.34 NTU	281.7 mV	7.12 ft	150.00 ml/min
9/19/2019 9:32 AM	03:00	7.04 pH	60.80 °F	38,894 µS/cm	3.61 mg/L	11.48 NTU	274.5 mV	7.12 ft	150.00 ml/min
9/19/2019 9:35 AM	06:00	7.04 pH	61.19 °F	38,140 µS/cm	4.11 mg/L	25.26 NTU	268.3 mV	7.12 ft	150.00 ml/min
9/19/2019 9:38 AM	09:00	7.04 pH	61.31 °F	37,573 µS/cm	4.52 mg/L	7.14 NTU	262.2 mV	7.12 ft	150.00 ml/min
9/19/2019 9:41 AM	12:00	7.04 pH	61.38 °F	37,198 µS/cm	4.86 mg/L	1.44 NTU	257.0 mV	7.12 ft	150.00 ml/min
9/19/2019 9:44 AM	15:00	7.04 pH	61.41 °F	36,959 µS/cm	5.11 mg/L	0.00 NTU	248.8 mV	7.12 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-139R	Sample Time: 0950 Final DTW: 7.12 ft btoc Final RDO: 5.11 mg/L

Low-Flow Test Report:

Test Date / Time: 9/19/2019 10:16:12 AM
Project: Edmonds Terminal 3Q19 GWM Event
Operator Name: Ryan Brauchla

Location Name: MW-509 Latitude: 47.8064631598646 Longitude: -122.389494068921 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 13 ft Total Depth: 3 ft Initial Depth to Water: 3.56 ft	Pump Type: Geopump Tubing Type: Polyethylene Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 0.2 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:
Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15		
9/19/2019 10:16 AM	00:00	6.70 pH	66.22 °F	41,577 µS/cm	1.79 mg/L	0.00 NTU	78.4 mV	3.56 ft	150.00 ml/min
9/19/2019 10:19 AM	03:00	6.78 pH	66.49 °F	43,838 µS/cm	1.58 mg/L	3.11 NTU	82.4 mV	3.56 ft	150.00 ml/min
9/19/2019 10:22 AM	06:00	6.80 pH	66.45 °F	43,922 µS/cm	1.58 mg/L	0.00 NTU	85.5 mV	3.56 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-509	Sample Time: 1025 Final DTW: 3.59 ft btoc Final RDO: 1.58 mg/L

Low-Flow Test Report:

Test Date / Time: 9/19/2019 10:22:42 AM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

<p>Location Name: MW-518 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 2.5 ft Total Depth: 12.5 ft Initial Depth to Water: 8.16 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 10.5 ft Estimated Total Volume Pumped: 4950 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.07 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050</p>
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/19/2019 10:22 AM	00:00	6.95 pH	62.69 °F	2,121.1 µS/cm	2.73 mg/L	9.05 NTU	28.7 mV	8.16 ft	150.00 ml/min
9/19/2019 10:25 AM	03:00	6.87 pH	63.94 °F	4,750.4 µS/cm	0.32 mg/L	0.00 NTU	-38.6 mV	8.16 ft	150.00 ml/min
9/19/2019 10:28 AM	06:00	6.85 pH	64.14 °F	4,423.4 µS/cm	0.21 mg/L	0.00 NTU	-51.9 mV	8.16 ft	150.00 ml/min
9/19/2019 10:31 AM	09:00	6.84 pH	64.22 °F	4,565.6 µS/cm	0.07 mg/L	0.00 NTU	-55.9 mV	8.16 ft	150.00 ml/min
9/19/2019 10:34 AM	12:00	6.82 pH	64.27 °F	4,757.0 µS/cm	0.08 mg/L	0.00 NTU	-58.8 mV	8.16 ft	150.00 ml/min
9/19/2019 10:37 AM	15:00	6.81 pH	64.33 °F	4,823.2 µS/cm	0.05 mg/L	0.00 NTU	-61.4 mV	8.16 ft	150.00 ml/min
9/19/2019 10:40 AM	18:00	6.80 pH	64.27 °F	4,910.4 µS/cm	0.05 mg/L	0.00 NTU	-63.1 mV	8.16 ft	150.00 ml/min
9/19/2019 10:43 AM	21:00	6.79 pH	64.32 °F	4,955.8 µS/cm	0.04 mg/L	0.00 NTU	-65.0 mV	8.16 ft	150.00 ml/min
9/19/2019 10:46 AM	24:00	6.78 pH	64.26 °F	5,004.1 µS/cm	0.04 mg/L	0.00 NTU	-67.1 mV	8.16 ft	150.00 ml/min
9/19/2019 10:49 AM	27:00	6.77 pH	64.29 °F	5,038.3 µS/cm	0.04 mg/L	0.84 NTU	-69.4 mV	8.16 ft	150.00 ml/min
9/19/2019 10:52 AM	30:00	6.77 pH	64.31 °F	5,098.1 µS/cm	0.04 mg/L	0.00 NTU	-71.9 mV	8.16 ft	150.00 ml/min
9/19/2019 10:55 AM	33:00	6.76 pH	64.34 °F	5,131.9 µS/cm	0.04 mg/L	0.00 NTU	-73.5 mV	8.16 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-518	Sample Time: 1110 Final DTW: 8.23 ft btoc Final RDO: 0.4 mg/L
DUP-3	Sample Time: 1110 Final DTW: 8.23 ft btoc Final RDO: 0.4 mg/L

Low-Flow Test Report:

Test Date / Time: 9/19/2019 10:24:35 AM

Project: Edmonds Terminal 3Q19

Operator Name: KF

Location Name: MW-126 Well Diameter: 2 in Casing Type: PVC Screen Length: 10.5 ft Top of Screen: 3.7 ft Total Depth: 14.2 ft Initial Depth to Water: 5.87 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2700 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.75 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 10:24 AM	00:00	6.68 pH	58.08 °F	465.08 µS/cm	2.77 mg/L	33.55 NTU	-5.5 mV	5.87 ft	150.00 ml/min
9/19/2019 10:27 AM	03:00	6.66 pH	57.62 °F	473.35 µS/cm	2.24 mg/L	47.31 NTU	15.0 mV	5.87 ft	150.00 ml/min
9/19/2019 10:30 AM	06:00	6.67 pH	57.44 °F	483.11 µS/cm	2.04 mg/L	17.80 NTU	26.9 mV	5.87 ft	150.00 ml/min
9/19/2019 10:33 AM	09:00	6.67 pH	57.34 °F	483.88 µS/cm	1.54 mg/L	8.18 NTU	33.8 mV	5.87 ft	150.00 ml/min
9/19/2019 10:36 AM	12:00	6.68 pH	57.23 °F	486.41 µS/cm	1.26 mg/L	2.08 NTU	38.6 mV	5.87 ft	150.00 ml/min
9/19/2019 10:39 AM	15:00	6.68 pH	57.25 °F	482.17 µS/cm	1.14 mg/L	1.01 NTU	41.5 mV	5.87 ft	150.00 ml/min
9/19/2019 10:42 AM	18:00	6.68 pH	57.16 °F	483.13 µS/cm	1.25 mg/L	0.38 NTU	44.9 mV	5.87 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-126	Sample Time: 1110 Final DTW: 6.62

Low-Flow Test Report:

Test Date / Time: 9/19/2019 10:46:59 AM

Project: Edmonds Terminal 3Q19 (9)

Operator Name: BT

Location Name: MW-519 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.82 ft	Pump Type: Geotech geopump series 2 Tubing Type: 0.170" x1/4" Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 1170 ml Flow Cell Volume: 130 ml Final Flow Rate: 130 ml/min Final Draw Down: 0.04 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Weather Conditions:

Partly cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
9/19/2019 10:46 AM	00:00	6.90 pH	64.11 °F	3.03 µS/cm	4.36 mg/L		-32.7 mV	6.82 ft	130.00 ml/min
9/19/2019 10:49 AM	03:00	6.83 pH	66.66 °F	689.44 µS/cm	1.79 mg/L		-44.5 mV	6.82 ft	130.00 ml/min
9/19/2019 10:52 AM	06:00	6.85 pH	66.84 °F	630.13 µS/cm	1.90 mg/L		-44.1 mV	6.82 ft	130.00 ml/min
9/19/2019 10:55 AM	09:00	6.83 pH	66.96 °F	646.87 µS/cm	1.97 mg/L		-41.4 mV	6.82 ft	130.00 ml/min

Samples

Sample ID:	Description:
MW-519	Sample time 1105 Final DTW 6.86

Low-Flow Test Report:

Test Date / Time: 9/19/2019 12:00:26 PM

Project: Edmonds Terminal 3Q19

Operator Name: KZ

<p>Location Name: MW-101 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.75 ft</p>	<p>Pump Type: Geotech geopump series 2 Tubing Type: Polyethylene 0.17" x 1/4" Pump Intake From TOC: 12.5 ft Estimated Total Volume Pumped: 5255 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.31 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469050</p>
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Test Notes:

Weather Conditions:

60, overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
9/19/2019 12:00 PM	00:00	7.08 pH	62.55 °F	1,539.9 µS/cm	2.85 mg/L	41.80 NTU	-19.9 mV	8.75 ft	150.00 ml/min
9/19/2019 12:03 PM	03:00	6.96 pH	61.94 °F	1,606.4 µS/cm	0.29 mg/L	5.52 NTU	-62.8 mV	8.75 ft	150.00 ml/min
9/19/2019 12:06 PM	06:00	6.94 pH	61.94 °F	1,592.8 µS/cm	0.24 mg/L	1.33 NTU	-70.3 mV	8.75 ft	150.00 ml/min
9/19/2019 12:09 PM	09:00	6.91 pH	61.98 °F	1,600.6 µS/cm	0.21 mg/L	2.38 NTU	-68.9 mV	8.75 ft	150.00 ml/min
9/19/2019 12:12 PM	12:00	6.85 pH	61.96 °F	1,582.8 µS/cm	0.22 mg/L	1.16 NTU	-58.8 mV	8.75 ft	150.00 ml/min
9/19/2019 12:15 PM	15:00	6.80 pH	61.97 °F	1,603.2 µS/cm	0.24 mg/L	0.47 NTU	-48.9 mV	8.75 ft	150.00 ml/min
9/19/2019 12:18 PM	18:00	6.77 pH	61.95 °F	1,630.6 µS/cm	0.29 mg/L	0.00 NTU	-42.1 mV	8.75 ft	150.00 ml/min
9/19/2019 12:21 PM	21:00	6.74 pH	61.83 °F	1,685.4 µS/cm	0.35 mg/L	0.00 NTU	-37.2 mV	8.75 ft	150.00 ml/min
9/19/2019 12:24 PM	24:00	6.71 pH	61.83 °F	1,763.2 µS/cm	0.39 mg/L	0.00 NTU	-32.7 mV	8.75 ft	150.00 ml/min
9/19/2019 12:27 PM	27:00	6.71 pH	61.70 °F	1,801.4 µS/cm	0.30 mg/L	0.00 NTU	-33.2 mV	8.75 ft	150.00 ml/min
9/19/2019 12:30 PM	30:00	6.69 pH	61.71 °F	1,851.7 µS/cm	0.29 mg/L	0.00 NTU	-30.9 mV	8.75 ft	150.00 ml/min
9/19/2019 12:33 PM	33:00	6.68 pH	61.58 °F	1,887.2 µS/cm	0.28 mg/L	0.00 NTU	-32.3 mV	8.75 ft	150.00 ml/min

9/19/2019 12:35 PM	35:02	6.68 pH	61.60 °F	1,926.0 µS/cm	0.30 mg/L	0.00 NTU	-31.8 mV	8.75 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-101	Sample Time: 1245 Final DTW: 9.06 ft btoc Final RDO: 0.30 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 9:37:18 AM

Project: Edmonds Terminal4Q19

Operator Name: KF

<p>Location Name: MW-512 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.8 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5400 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

MS/MSD

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 9:37 AM	00:00	6.45 pH	49.96 °F	10,354 µS/cm	7.03 mg/L	-59.8 mV	6.80 ft	150.00 ml/min
12/9/2019 9:40 AM	03:00	6.72 pH	52.99 °F	8,887.9 µS/cm	0.32 mg/L	-121.6 mV	6.80 ft	150.00 ml/min
12/9/2019 9:43 AM	06:00	6.82 pH	53.23 °F	7,906.7 µS/cm	0.23 mg/L	-124.4 mV	6.80 ft	150.00 ml/min
12/9/2019 9:46 AM	09:00	6.91 pH	53.46 °F	6,789.1 µS/cm	0.20 mg/L	-125.0 mV	6.80 ft	150.00 ml/min
12/9/2019 9:49 AM	12:00	6.92 pH	53.28 °F	6,324.5 µS/cm	0.17 mg/L	-124.1 mV	6.80 ft	150.00 ml/min
12/9/2019 9:52 AM	15:00	6.93 pH	53.25 °F	6,111.4 µS/cm	0.23 mg/L	-118.9 mV	6.80 ft	150.00 ml/min
12/9/2019 9:55 AM	18:00	6.92 pH	53.29 °F	5,340.0 µS/cm	0.37 mg/L	-116.9 mV	6.80 ft	150.00 ml/min
12/9/2019 9:58 AM	21:00	6.87 pH	53.27 °F	4,143.4 µS/cm	0.60 mg/L	-105.8 mV	6.80 ft	150.00 ml/min
12/9/2019 10:01 AM	24:00	6.82 pH	53.32 °F	3,642.5 µS/cm	0.49 mg/L	-95.4 mV	6.80 ft	150.00 ml/min
12/9/2019 10:04 AM	27:00	6.80 pH	53.20 °F	3,470.9 µS/cm	0.39 mg/L	-90.3 mV	6.80 ft	150.00 ml/min
12/9/2019 10:07 AM	30:00	6.80 pH	53.23 °F	3,310.2 µS/cm	0.33 mg/L	-88.6 mV	6.80 ft	150.00 ml/min
12/9/2019 10:10 AM	33:00	6.79 pH	53.25 °F	3,304.7 µS/cm	0.30 mg/L	-88.3 mV	6.80 ft	150.00 ml/min

12/9/2019 10:13 AM	36:00	6.79 pH	53.16 °F	3,307.7 µS/cm	0.31 mg/L	-81.4 mV	6.80 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-512	Sample Time: 1023 Final DTW: 6.80 Ferrous Iron: 4.0 mg/L Final RDO: 0.31 mg/L MS/MSD Taken

Low-Flow Test Report:

Test Date / Time: 12/9/2019 9:41:58 AM

Project: Edmonds Terminal 4Q19

Operator Name: DSG

<p>Location Name: Device Location Initial Depth to Water: 4.99 ft</p>	<p>Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 7515 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 9:41 AM	00:00	6.52 pH	51.80 °F	5,100.7 µS/cm	5.52 mg/L	22.1 mV	4.99 ft	150.00 ml/min
12/9/2019 9:44 AM	03:00	6.60 pH	54.38 °F	4,776.8 µS/cm	0.33 mg/L	-22.7 mV	4.99 ft	150.00 ml/min
12/9/2019 9:47 AM	06:00	6.60 pH	55.10 °F	4,790.0 µS/cm	0.19 mg/L	-30.9 mV	4.99 ft	150.00 ml/min
12/9/2019 9:50 AM	09:00	6.61 pH	55.39 °F	4,799.8 µS/cm	0.15 mg/L	-37.8 mV	4.99 ft	150.00 ml/min
12/9/2019 9:53 AM	12:00	6.61 pH	55.59 °F	4,821.5 µS/cm	0.09 mg/L	-41.9 mV	4.99 ft	150.00 ml/min
12/9/2019 9:56 AM	15:00	6.61 pH	55.69 °F	4,685.0 µS/cm	0.07 mg/L	-45.3 mV	4.99 ft	150.00 ml/min
12/9/2019 9:59 AM	18:00	6.61 pH	55.75 °F	4,572.9 µS/cm	0.05 mg/L	-47.1 mV	4.99 ft	150.00 ml/min
12/9/2019 10:02 AM	21:00	6.61 pH	55.85 °F	4,603.8 µS/cm	0.05 mg/L	-50.3 mV	4.99 ft	150.00 ml/min
12/9/2019 10:05 AM	24:00	6.61 pH	55.70 °F	4,520.2 µS/cm	0.06 mg/L	-50.0 mV	4.99 ft	150.00 ml/min
12/9/2019 10:11 AM	29:41	6.62 pH	55.66 °F	5,382.3 µS/cm	0.05 mg/L	-58.6 mV	4.99 ft	150.00 ml/min
12/9/2019 10:14 AM	32:41	6.62 pH	55.61 °F	5,394.6 µS/cm	0.06 mg/L	-57.3 mV	4.99 ft	150.00 ml/min
12/9/2019 10:17 AM	35:41	6.62 pH	55.43 °F	5,490.1 µS/cm	0.07 mg/L	-55.3 mV	4.99 ft	150.00 ml/min
12/9/2019 10:20 AM	38:41	6.62 pH	55.46 °F	5,665.8 µS/cm	0.06 mg/L	-52.4 mV	4.99 ft	150.00 ml/min

12/9/2019 10:29 AM	47:52	6.63 pH	55.60 °F	5,736.9 µS/cm	0.06 mg/L	-41.4 mV	4.99 ft	150.00 ml/min
12/9/2019 10:30 AM	48:58	6.63 pH	55.60 °F	5,793.3 µS/cm	0.05 mg/L	-40.4 mV	4.99 ft	150.00 ml/min
12/9/2019 10:32 AM	50:06	6.63 pH	55.63 °F	5,851.1 µS/cm	0.04 mg/L	-39.6 mV	4.99 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-514	Sample Time: 10:35 Final DTW: 4.99 Final RDO: 0.05 mg/L Ferrous Iron: 3.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 9:42:13 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-518 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 2.5 ft Total Depth: 12.5 ft Initial Depth to Water: 8.51 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 10.5 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

50, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 9:42 AM	00:00	6.73 pH	54.29 °F	3,790.3 µS/cm	2.84 mg/L	-18.1 mV	8.51 ft	150.00 ml/min
12/9/2019 9:45 AM	03:00	6.83 pH	55.30 °F	3,720.2 µS/cm	0.55 mg/L	-61.8 mV	8.51 ft	150.00 ml/min
12/9/2019 9:48 AM	06:00	6.86 pH	55.86 °F	3,681.6 µS/cm	0.32 mg/L	-78.1 mV	8.51 ft	150.00 ml/min
12/9/2019 9:51 AM	09:00	6.88 pH	56.30 °F	3,630.9 µS/cm	0.44 mg/L	-87.6 mV	8.51 ft	150.00 ml/min
12/9/2019 9:54 AM	12:00	6.89 pH	56.46 °F	3,609.5 µS/cm	0.39 mg/L	-95.4 mV	8.51 ft	150.00 ml/min
12/9/2019 9:57 AM	15:00	6.91 pH	56.68 °F	3,584.1 µS/cm	0.31 mg/L	-102.6 mV	8.51 ft	150.00 ml/min
12/9/2019 10:00 AM	18:00	6.92 pH	56.76 °F	3,592.3 µS/cm	0.26 mg/L	-106.4 mV	8.51 ft	150.00 ml/min
12/9/2019 10:03 AM	21:00	6.92 pH	57.02 °F	3,594.2 µS/cm	0.24 mg/L	-110.9 mV	8.51 ft	150.00 ml/min
12/9/2019 10:06 AM	24:00	6.92 pH	57.09 °F	3,607.6 µS/cm	0.43 mg/L	-114.0 mV	8.51 ft	150.00 ml/min
12/9/2019 10:09 AM	27:00	6.92 pH	57.07 °F	3,608.5 µS/cm	0.37 mg/L	-115.8 mV	8.51 ft	150.00 ml/min
12/9/2019 10:12 AM	30:00	6.93 pH	57.23 °F	3,640.3 µS/cm	0.25 mg/L	-117.2 mV	8.51 ft	150.00 ml/min
12/9/2019 10:15 AM	33:00	6.93 pH	57.24 °F	3,654.2 µS/cm	0.23 mg/L	-119.0 mV	8.51 ft	150.00 ml/min
12/9/2019 10:18 AM	36:00	6.93 pH	57.36 °F	3,687.3 µS/cm	0.21 mg/L	-121.5 mV	8.51 ft	150.00 ml/min

12/9/2019 10:21 AM	39:00	6.93 pH	57.29 °F	3,679.8 µS/cm	0.18 mg/L	-123.3 mV	8.51 ft	150.00 ml/min
12/9/2019 10:24 AM	42:00	6.93 pH	57.33 °F	3,710.5 µS/cm	0.18 mg/L	-123.9 mV	8.51 ft	150.00 ml/min
12/9/2019 10:27 AM	45:00	6.93 pH	57.44 °F	3,737.9 µS/cm	0.15 mg/L	-124.6 mV	8.51 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-518	Sample Time: 1030 Final DTW: 8.61 ft btoc Final RDO: 0.15 mg/L Ferrous Iron: 3.5 mg/L RDO did not stabilize after 45 minutes
DUP-1	Sample Time: -

Low-Flow Test Report:

Test Date / Time: 12/9/2019 9:47:06 AM

Project: Edmonds Terminal #419

Operator Name: BT

Location Name: MW-513 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 7200 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206
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Test Notes:

Weather Conditions:

Cloudy 47

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %	
12/9/2019 9:47 AM	00:00	6.69 pH	54.78 °F	14,341 µS/cm	4.77 mg/L	-14.1 mV	150.00 ml/min
12/9/2019 9:50 AM	03:00	6.57 pH	55.33 °F	12,268 µS/cm	1.88 mg/L	-33.4 mV	150.00 ml/min
12/9/2019 9:53 AM	06:00	6.56 pH	55.22 °F	13,452 µS/cm	2.04 mg/L	-40.8 mV	150.00 ml/min
12/9/2019 9:56 AM	09:00	6.57 pH	55.37 °F	12,514 µS/cm	1.90 mg/L	-34.1 mV	150.00 ml/min
12/9/2019 9:59 AM	12:00	6.59 pH	55.29 °F	11,739 µS/cm	2.58 mg/L	-39.7 mV	150.00 ml/min
12/9/2019 10:02 AM	15:00	6.60 pH	55.37 °F	11,195 µS/cm	1.89 mg/L	-52.3 mV	150.00 ml/min
12/9/2019 10:05 AM	18:00	6.62 pH	55.27 °F	10,498 µS/cm	2.15 mg/L	-59.4 mV	150.00 ml/min
12/9/2019 10:08 AM	21:00	6.63 pH	55.20 °F	10,436 µS/cm	1.60 mg/L	-57.6 mV	150.00 ml/min
12/9/2019 10:11 AM	24:00	6.63 pH	55.19 °F	11,046 µS/cm	1.87 mg/L	-50.4 mV	150.00 ml/min
12/9/2019 10:14 AM	27:00	6.64 pH	55.11 °F	10,787 µS/cm	1.88 mg/L	-39.4 mV	150.00 ml/min
12/9/2019 10:17 AM	30:00	6.63 pH	55.30 °F	11,118 µS/cm	1.86 mg/L	-54.0 mV	150.00 ml/min
12/9/2019 10:20 AM	33:00	6.64 pH	55.25 °F	10,072 µS/cm	1.96 mg/L	-47.8 mV	150.00 ml/min

12/9/2019 10:23 AM	36:00	6.64 pH	55.24 °F	10,965 µS/cm	2.22 mg/L	-57.7 mV	150.00 ml/min
12/9/2019 10:26 AM	39:00	6.61 pH	55.52 °F	11,824 µS/cm	2.21 mg/L	-54.9 mV	150.00 ml/min
12/9/2019 10:29 AM	42:00	6.63 pH	55.46 °F	11,339 µS/cm	2.87 mg/L	-46.8 mV	150.00 ml/min
12/9/2019 10:32 AM	45:00	6.69 pH	55.39 °F	9,625.6 µS/cm	3.20 mg/L	-64.8 mV	150.00 ml/min
12/9/2019 10:35 AM	48:00	6.62 pH	55.41 °F	11,620 µS/cm	2.85 mg/L	-62.9 mV	150.00 ml/min

Samples

Sample ID:	Description:
MW-513	Time: 1042 DTW: 4.70 RDO: 3.02 Ferrous Fe: 6.5 Did not stabilize after 45 min

Low-Flow Test Report:

Test Date / Time: 12/9/2019 11:23:36 AM

Project: Edmonds Terminal4Q19

Operator Name: KF

Location Name: MW-511 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 8.12 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 11:23 AM	00:00	7.62 pH	51.37 °F	295.87 µS/cm	7.73 mg/L	-9.2 mV	8.12 ft	150.00 ml/min
12/9/2019 11:26 AM	03:00	6.62 pH	51.97 °F	110.60 µS/cm	3.62 mg/L	0.3 mV	8.12 ft	150.00 ml/min
12/9/2019 11:29 AM	06:00	6.55 pH	52.09 °F	108.11 µS/cm	3.66 mg/L	4.4 mV	8.12 ft	150.00 ml/min
12/9/2019 11:32 AM	09:00	6.52 pH	52.32 °F	105.77 µS/cm	3.58 mg/L	7.5 mV	8.12 ft	150.00 ml/min
12/9/2019 11:35 AM	12:00	6.50 pH	52.40 °F	105.34 µS/cm	3.38 mg/L	9.6 mV	8.12 ft	150.00 ml/min
12/9/2019 11:38 AM	15:00	6.48 pH	52.48 °F	103.80 µS/cm	3.43 mg/L	5.3 mV	8.12 ft	150.00 ml/min
12/9/2019 11:41 AM	18:00	6.47 pH	52.57 °F	103.30 µS/cm	3.30 mg/L	4.6 mV	8.12 ft	150.00 ml/min
12/9/2019 11:44 AM	21:00	6.47 pH	52.57 °F	102.43 µS/cm	3.33 mg/L	4.8 mV	8.12 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-511	Sample Time: 1203 Final DTW: 8.15 Ferrous Iron: 0.0 mg/L Final RDO: 3.33 mg/L
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 12/9/2019 11:29:58 AM

Project: Edmonds Terminal 4Q19 (2)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 4.84 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 3672.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 11:29 AM	00:00	6.74 pH	52.57 °F	10,246 µS/cm	4.70 mg/L	58.5 mV	4.84 ft	150.00 ml/min
12/9/2019 11:32 AM	03:00	6.72 pH	53.93 °F	9,864.0 µS/cm	0.25 mg/L	68.5 mV	4.84 ft	150.00 ml/min
12/9/2019 11:35 AM	06:00	6.76 pH	53.80 °F	8,041.3 µS/cm	0.13 mg/L	64.1 mV	4.84 ft	150.00 ml/min
12/9/2019 11:38 AM	09:00	6.83 pH	53.58 °F	5,871.4 µS/cm	0.50 mg/L	60.8 mV	4.84 ft	150.00 ml/min
12/9/2019 11:41 AM	12:00	6.86 pH	53.19 °F	5,089.9 µS/cm	1.40 mg/L	65.5 mV	4.84 ft	150.00 ml/min
12/9/2019 11:44 AM	15:00	6.87 pH	53.07 °F	4,998.6 µS/cm	1.78 mg/L	68.9 mV	4.84 ft	150.00 ml/min
12/9/2019 11:47 AM	18:00	6.87 pH	53.13 °F	4,958.6 µS/cm	1.97 mg/L	69.4 mV	4.84 ft	150.00 ml/min
12/9/2019 11:50 AM	21:00	6.87 pH	53.22 °F	4,959.1 µS/cm	1.92 mg/L	70.1 mV	4.84 ft	150.00 ml/min
12/9/2019 11:53 AM	23:35	6.87 pH	53.22 °F	4,930.8 µS/cm	1.87 mg/L	69.8 mV	4.84 ft	150.00 ml/min
12/9/2019 11:53 AM	23:52	6.87 pH	53.19 °F	4,920.4 µS/cm	1.85 mg/L	69.9 mV	4.84 ft	150.00 ml/min
12/9/2019 11:54 AM	24:29	6.87 pH	53.13 °F	4,911.4 µS/cm	1.81 mg/L	70.1 mV	4.84 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-516	Sample Time: 11:55 Final DTW: 4.84 Final RDO: 1.91 Ferrous Iron: 0.5

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 12/9/2019 11:33:24 AM

Project: Edmonds Terminal #419 (2)

Operator Name: BT

<p>Location Name: MW-517 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 2700 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.02 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %	
12/9/2019 11:33 AM	00:00	6.67 pH	52.49 °F	10,041 µS/cm	3.79 mg/L	-7.7 mV	150.00 ml/min
12/9/2019 11:36 AM	03:00	6.67 pH	53.30 °F	7,206.6 µS/cm	0.45 mg/L	7.0 mV	150.00 ml/min
12/9/2019 11:39 AM	06:00	6.79 pH	53.03 °F	4,834.0 µS/cm	2.17 mg/L	20.5 mV	150.00 ml/min
12/9/2019 11:42 AM	09:00	6.80 pH	52.96 °F	4,963.9 µS/cm	3.41 mg/L	47.9 mV	150.00 ml/min
12/9/2019 11:45 AM	12:00	6.80 pH	52.94 °F	4,931.7 µS/cm	3.93 mg/L	64.3 mV	150.00 ml/min
12/9/2019 11:48 AM	15:00	6.80 pH	52.97 °F	4,923.9 µS/cm	3.91 mg/L	70.3 mV	150.00 ml/min
12/9/2019 11:51 AM	18:00	6.79 pH	52.88 °F	4,896.9 µS/cm	4.08 mg/L	75.7 mV	150.00 ml/min

Samples

Sample ID:	Description:
MW-517	Time: 1152 Final DTW: 5.61 Final RDO: 4.03 Ferrous Fe: 1.0 Metals batch QC

Low-Flow Test Report:

Test Date / Time: 12/9/2019 11:59:33 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-139R Well Diameter: 2 in Casing Type: PVC Screen Length: 10.5 ft Top of Screen: 4.4 ft Total Depth: 14.9 ft Initial Depth to Water: 7.36 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 10.5 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

50, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 11:59 AM	00:00	7.35 pH	51.35 °F	3,173.8 µS/cm	9.63 mg/L	65.6 mV	7.36 ft	150.00 ml/min
12/9/2019 12:02 PM	03:00	7.29 pH	52.75 °F	3,079.2 µS/cm	4.47 mg/L	65.5 mV	7.36 ft	150.00 ml/min
12/9/2019 12:05 PM	06:00	7.28 pH	52.68 °F	2,887.1 µS/cm	4.57 mg/L	66.1 mV	7.36 ft	150.00 ml/min
12/9/2019 12:08 PM	09:00	7.27 pH	52.51 °F	2,919.5 µS/cm	4.75 mg/L	67.8 mV	7.36 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-139R	Sample Time: 1220 Final DTW: 7.37 Final RDO: 4.75 mg/L Ferrous Iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 12:42:01 PM

Project: Edmonds Terminal 4Q19 (3)

Operator Name: DSG

<p>Location Name: Device Location Initial Depth to Water: 5.19 ft</p>	<p>Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545</p>
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 12:42 PM	00:00	6.80 pH	52.39 °F	11,637 µS/cm	3.81 mg/L	75.7 mV	5.19 ft	150.00 ml/min
12/9/2019 12:45 PM	03:00	6.74 pH	53.82 °F	11,368 µS/cm	0.23 mg/L	64.2 mV	5.19 ft	150.00 ml/min
12/9/2019 12:48 PM	06:00	6.75 pH	54.24 °F	11,504 µS/cm	0.13 mg/L	66.6 mV	5.19 ft	150.00 ml/min
12/9/2019 12:51 PM	09:00	6.75 pH	54.35 °F	11,539 µS/cm	0.10 mg/L	68.5 mV	5.19 ft	150.00 ml/min
12/9/2019 12:54 PM	12:00	6.73 pH	54.21 °F	12,333 µS/cm	0.15 mg/L	70.3 mV	5.19 ft	150.00 ml/min
12/9/2019 12:57 PM	15:00	6.74 pH	54.11 °F	12,118 µS/cm	0.13 mg/L	72.4 mV	5.19 ft	150.00 ml/min
12/9/2019 1:00 PM	18:00	6.74 pH	54.19 °F	11,926 µS/cm	0.11 mg/L	73.1 mV	5.19 ft	150.00 ml/min
12/9/2019 1:03 PM	21:00	6.74 pH	54.20 °F	11,888 µS/cm	0.08 mg/L	73.9 mV	5.19 ft	150.00 ml/min
12/9/2019 1:06 PM	24:00	6.75 pH	54.36 °F	11,817 µS/cm	0.08 mg/L	74.4 mV	5.19 ft	150.00 ml/min
12/9/2019 1:09 PM	27:00	6.74 pH	54.41 °F	11,847 µS/cm	0.07 mg/L	75.1 mV	5.19 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-515	Sample Time: 13:15 Final DTW: 5.19 Final RDO: 0.07 Ferrous Iron: 0.0
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 12/9/2019 12:48:17 PM

Project: Edmonds Terminal4Q19

Operator Name: KF

<p>Location Name: MW-502 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.5 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.15 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

RDO did not stabilize

Biofilm in purge water

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 12:48 PM	00:00	6.59 pH	54.94 °F	251.21 µS/cm	6.66 mg/L	5.6 mV	5.50 ft	150.00 ml/min
12/9/2019 12:51 PM	03:00	6.35 pH	53.47 °F	254.07 µS/cm	0.50 mg/L	-0.4 mV	5.50 ft	150.00 ml/min
12/9/2019 12:54 PM	06:00	6.34 pH	53.22 °F	256.30 µS/cm	0.36 mg/L	-4.8 mV	5.50 ft	150.00 ml/min
12/9/2019 12:57 PM	09:00	6.34 pH	53.01 °F	258.46 µS/cm	0.41 mg/L	-9.0 mV	5.50 ft	150.00 ml/min
12/9/2019 1:00 PM	12:00	6.34 pH	52.92 °F	259.33 µS/cm	0.32 mg/L	-12.4 mV	5.50 ft	150.00 ml/min
12/9/2019 1:03 PM	15:00	6.34 pH	52.88 °F	260.86 µS/cm	0.24 mg/L	-15.4 mV	5.50 ft	150.00 ml/min
12/9/2019 1:06 PM	18:00	6.33 pH	52.82 °F	262.15 µS/cm	0.21 mg/L	-17.6 mV	5.50 ft	150.00 ml/min
12/9/2019 1:09 PM	21:00	6.33 pH	52.75 °F	262.73 µS/cm	0.16 mg/L	-19.5 mV	5.50 ft	150.00 ml/min
12/9/2019 1:12 PM	24:00	6.33 pH	52.69 °F	263.67 µS/cm	0.19 mg/L	-21.2 mV	5.50 ft	150.00 ml/min
12/9/2019 1:15 PM	27:00	6.33 pH	52.83 °F	264.50 µS/cm	0.14 mg/L	-22.6 mV	5.50 ft	150.00 ml/min
12/9/2019 1:18 PM	30:00	6.33 pH	52.86 °F	265.75 µS/cm	0.12 mg/L	-23.9 mV	5.50 ft	150.00 ml/min
12/9/2019 1:21 PM	33:00	6.33 pH	52.83 °F	265.81 µS/cm	0.21 mg/L	-24.4 mV	5.50 ft	150.00 ml/min

12/9/2019 1:24 PM	36:00	6.34 pH	52.88 °F	266.49 µS/cm	0.22 mg/L	-25.3 mV	5.50 ft	150.00 ml/min
12/9/2019 1:27 PM	39:00	6.33 pH	52.92 °F	267.42 µS/cm	0.17 mg/L	-26.1 mV	5.50 ft	150.00 ml/min
12/9/2019 1:30 PM	42:00	6.34 pH	52.93 °F	266.68 µS/cm	0.23 mg/L	-27.1 mV	5.50 ft	150.00 ml/min
12/9/2019 1:33 PM	45:00	6.35 pH	52.97 °F	266.12 µS/cm	0.18 mg/L	-28.8 mV	5.50 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-502	Sample Time: 1343 Final DTW: 5.65 Ferrous Iron: 2.5 mg/L Final RDO: 0.18 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 1:20:22 PM

Project: Edmonds Terminal #419 (3)

Operator Name: BT

<p>Location Name: MW-505 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %	
12/9/2019 1:20 PM	00:00	6.73 pH	54.50 °F	2,053.5 µS/cm	1.63 mg/L	44.5 mV	150.00 ml/min
12/9/2019 1:23 PM	03:00	6.68 pH	55.47 °F	2,878.1 µS/cm	0.50 mg/L	-15.1 mV	150.00 ml/min
12/9/2019 1:26 PM	06:00	6.68 pH	55.50 °F	4,311.2 µS/cm	0.36 mg/L	-51.5 mV	150.00 ml/min
12/9/2019 1:29 PM	09:00	6.69 pH	55.32 °F	4,941.1 µS/cm	0.39 mg/L	-68.5 mV	150.00 ml/min
12/9/2019 1:32 PM	12:00	6.70 pH	55.27 °F	4,995.1 µS/cm	0.39 mg/L	-76.3 mV	150.00 ml/min
12/9/2019 1:35 PM	15:00	6.71 pH	55.30 °F	4,967.6 µS/cm	0.32 mg/L	-83.3 mV	150.00 ml/min
12/9/2019 1:38 PM	18:00	6.71 pH	55.09 °F	5,332.5 µS/cm	0.34 mg/L	-86.5 mV	150.00 ml/min
12/9/2019 1:41 PM	21:00	6.71 pH	55.13 °F	5,495.6 µS/cm	0.34 mg/L	-89.2 mV	150.00 ml/min

Samples

Sample ID:	Description:
MW-505	Time: 1342 Final DTW: 5.02 Final RDO: Ferrous Fe:3.5

Low-Flow Test Report:

Test Date / Time: 12/9/2019 1:23:39 PM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-509 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.81 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 8 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

44, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 1:23 PM	00:00	7.14 pH	51.20 °F	3,606.2 µS/cm	4.40 mg/L	103.4 mV	3.81 ft	150.00 ml/min
12/9/2019 1:26 PM	03:00	6.98 pH	51.21 °F	3,293.2 µS/cm	2.11 mg/L	102.4 mV	3.81 ft	150.00 ml/min
12/9/2019 1:29 PM	06:00	6.92 pH	51.22 °F	3,302.8 µS/cm	2.64 mg/L	102.1 mV	3.81 ft	150.00 ml/min
12/9/2019 1:32 PM	09:00	6.88 pH	51.20 °F	3,205.0 µS/cm	2.94 mg/L	102.7 mV	3.81 ft	150.00 ml/min
12/9/2019 1:35 PM	12:00	6.89 pH	51.19 °F	3,203.6 µS/cm	2.99 mg/L	102.9 mV	3.81 ft	150.00 ml/min
12/9/2019 1:43 PM	20:20	7.03 pH	51.02 °F	1.11 µS/cm	11.70 mg/L	99.0 mV	3.81 ft	150.00 ml/min
12/9/2019 1:44 PM	20:45	7.05 pH	51.02 °F	1.08 µS/cm	11.91 mg/L	98.3 mV	3.81 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-509	Sample Time: 1350 Final DTW: 3.81 ft btoc Final RDO: 2.99 mg/L Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 2:08:42 PM

Project: Edmonds Terminal 4Q19 (4)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 6.95 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5372.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.1 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 2:08 PM	00:00	6.92 pH	52.87 °F	5,838.4 µS/cm	0.92 mg/L	-88.9 mV	6.95 ft	150.00 ml/min
12/9/2019 2:11 PM	02:49	6.88 pH	54.05 °F	5,295.1 µS/cm	0.46 mg/L	-99.8 mV	6.95 ft	150.00 ml/min
12/9/2019 2:14 PM	05:49	6.87 pH	54.39 °F	4,971.5 µS/cm	0.07 mg/L	-107.8 mV	6.95 ft	150.00 ml/min
12/9/2019 2:17 PM	08:49	6.86 pH	54.19 °F	5,218.0 µS/cm	0.08 mg/L	-112.0 mV	6.95 ft	150.00 ml/min
12/9/2019 2:20 PM	11:49	6.86 pH	54.08 °F	4,936.3 µS/cm	0.11 mg/L	-114.4 mV	6.95 ft	150.00 ml/min
12/9/2019 2:23 PM	14:49	6.86 pH	54.07 °F	4,848.8 µS/cm	0.10 mg/L	-116.9 mV	6.95 ft	150.00 ml/min
12/9/2019 2:26 PM	17:49	6.86 pH	54.13 °F	4,883.3 µS/cm	0.08 mg/L	-119.3 mV	6.95 ft	150.00 ml/min
12/9/2019 2:29 PM	20:49	6.93 pH	54.06 °F	4,794.5 µS/cm	0.65 mg/L	-119.1 mV	6.95 ft	150.00 ml/min
12/9/2019 2:32 PM	23:49	6.86 pH	54.21 °F	4,832.5 µS/cm	0.22 mg/L	-115.9 mV	6.95 ft	150.00 ml/min
12/9/2019 2:35 PM	26:49	6.86 pH	54.27 °F	4,828.4 µS/cm	0.11 mg/L	-116.9 mV	6.95 ft	150.00 ml/min
12/9/2019 2:38 PM	29:49	6.86 pH	54.38 °F	4,707.0 µS/cm	0.05 mg/L	-121.5 mV	6.95 ft	150.00 ml/min
12/9/2019 2:41 PM	32:49	6.86 pH	54.37 °F	4,612.7 µS/cm	0.04 mg/L	-123.9 mV	6.95 ft	150.00 ml/min
12/9/2019 2:44 PM	35:49	6.87 pH	54.37 °F	4,576.8 µS/cm	0.04 mg/L	-125.5 mV	6.95 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-506	Sample Time: 14:55 Final DTW: 8.05 ft Final RDO: 0.04 mg/L Ferrous Iron: 5.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/9/2019 2:10:12 PM

Project: Edmonds Terminal4Q19

Operator Name: KF

Location Name: MW-503 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.37 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.07 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 2:10 PM	00:00	6.27 pH	55.87 °F	429.08 µS/cm	6.69 mg/L	16.8 mV	5.37 ft	150.00 ml/min
12/9/2019 2:13 PM	03:00	6.44 pH	56.21 °F	424.77 µS/cm	0.36 mg/L	-3.7 mV	5.37 ft	150.00 ml/min
12/9/2019 2:16 PM	06:00	6.45 pH	56.10 °F	423.53 µS/cm	0.30 mg/L	-6.9 mV	5.37 ft	150.00 ml/min
12/9/2019 2:19 PM	09:00	6.45 pH	56.10 °F	423.28 µS/cm	0.30 mg/L	-16.3 mV	5.37 ft	150.00 ml/min
12/9/2019 2:22 PM	12:00	6.45 pH	56.30 °F	420.44 µS/cm	0.23 mg/L	-24.0 mV	5.37 ft	150.00 ml/min
12/9/2019 2:25 PM	15:00	6.45 pH	56.26 °F	418.22 µS/cm	0.15 mg/L	-27.7 mV	5.37 ft	150.00 ml/min
12/9/2019 2:28 PM	18:00	6.46 pH	55.93 °F	408.76 µS/cm	0.16 mg/L	-30.3 mV	5.37 ft	150.00 ml/min
12/9/2019 2:31 PM	21:00	6.45 pH	56.18 °F	416.67 µS/cm	0.16 mg/L	-31.1 mV	5.37 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-503	Sample Time: 1453 Final DTW: 5.44 Ferrous Iron: 6.5 mg/L Final RDO: 0.16 mg/L
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Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 12/9/2019 2:29:36 PM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-507 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.08 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 10 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.23 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

40, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 2:29 PM	00:00	6.90 pH	53.17 °F	1,142.9 µS/cm	5.14 mg/L	105.0 mV	7.08 ft	150.00 ml/min
12/9/2019 2:32 PM	03:00	6.87 pH	54.20 °F	1,122.4 µS/cm	2.40 mg/L	108.3 mV	7.08 ft	150.00 ml/min
12/9/2019 2:35 PM	06:00	6.86 pH	54.73 °F	1,114.1 µS/cm	2.23 mg/L	109.2 mV	7.08 ft	150.00 ml/min
12/9/2019 2:38 PM	09:00	6.85 pH	54.93 °F	1,108.7 µS/cm	1.99 mg/L	109.6 mV	7.08 ft	150.00 ml/min
12/9/2019 2:41 PM	12:00	6.85 pH	55.20 °F	1,105.0 µS/cm	1.84 mg/L	109.3 mV	7.08 ft	150.00 ml/min
12/9/2019 2:44 PM	15:00	6.84 pH	55.41 °F	1,101.7 µS/cm	1.55 mg/L	108.4 mV	7.08 ft	150.00 ml/min
12/9/2019 2:47 PM	18:00	6.84 pH	55.58 °F	1,095.7 µS/cm	1.23 mg/L	107.6 mV	7.08 ft	150.00 ml/min
12/9/2019 2:50 PM	21:00	6.83 pH	55.56 °F	1,093.2 µS/cm	1.14 mg/L	106.9 mV	7.08 ft	150.00 ml/min
12/9/2019 2:53 PM	24:00	6.83 pH	55.64 °F	1,087.3 µS/cm	0.99 mg/L	106.3 mV	7.08 ft	150.00 ml/min
12/9/2019 2:56 PM	27:00	6.83 pH	55.74 °F	1,084.1 µS/cm	0.89 mg/L	105.1 mV	7.08 ft	150.00 ml/min
12/9/2019 2:59 PM	30:00	6.82 pH	55.81 °F	1,081.6 µS/cm	0.79 mg/L	104.2 mV	7.08 ft	150.00 ml/min
12/9/2019 3:02 PM	33:00	6.82 pH	55.94 °F	1,074.7 µS/cm	0.71 mg/L	103.6 mV	7.08 ft	150.00 ml/min
12/9/2019 3:05 PM	36:00	6.82 pH	55.89 °F	1,070.0 µS/cm	0.64 mg/L	102.6 mV	7.08 ft	150.00 ml/min

12/9/2019 3:08 PM	39:00	6.82 pH	55.99 °F	1,063.1 µS/cm	0.56 mg/L	101.9 mV	7.08 ft	150.00 ml/min
12/9/2019 3:11 PM	42:00	6.82 pH	56.03 °F	1,059.1 µS/cm	0.52 mg/L	101.2 mV	7.08 ft	150.00 ml/min
12/9/2019 3:14 PM	45:00	6.82 pH	56.02 °F	1,051.7 µS/cm	0.43 mg/L	100.4 mV	7.08 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-507	<p>Sample Time: 1520 Final DTW: Final RDO: 0.42 mg/L Ferrous Iron: 0.0 mg/L RDO did not stabilize after 45 minutes.</p>

Low-Flow Test Report:

Test Date / Time: 12/9/2019 2:36:52 PM

Project: Edmonds Terminal #419 (4)

Operator Name: BT

<p>Location Name: MW-504 Well Diameter: 2 in Casing Type: Pvc Screen Length: 1 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.9 m</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 m</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/9/2019 2:36 PM	00:00	7.16 pH	54.30 °F	1,109.3 µS/cm	7.74 mg/L	-24.5 mV	6.90 m	150.00 ml/min
12/9/2019 2:39 PM	03:00	7.06 pH	55.18 °F	1,697.4 µS/cm	6.61 mg/L	28.8 mV	6.90 m	150.00 ml/min
12/9/2019 2:42 PM	06:00	7.03 pH	55.26 °F	3,424.0 µS/cm	5.47 mg/L	40.4 mV	6.90 m	150.00 ml/min
12/9/2019 2:45 PM	09:00	7.00 pH	55.45 °F	4,241.0 µS/cm	4.39 mg/L	13.5 mV	6.90 m	150.00 ml/min
12/9/2019 2:48 PM	12:00	7.00 pH	55.60 °F	4,431.1 µS/cm	3.63 mg/L	0.6 mV	6.90 m	150.00 ml/min
12/9/2019 2:51 PM	15:00	6.98 pH	55.44 °F	4,528.2 µS/cm	3.06 mg/L	-9.4 mV	6.90 m	150.00 ml/min
12/9/2019 2:54 PM	18:00	6.97 pH	55.52 °F	4,663.1 µS/cm	2.45 mg/L	-15.2 mV	6.90 m	150.00 ml/min
12/9/2019 2:57 PM	21:00	6.91 pH	55.64 °F	5,534.4 µS/cm	2.09 mg/L	-18.5 mV	6.90 m	150.00 ml/min
12/9/2019 3:00 PM	24:00	6.94 pH	55.73 °F	4,939.4 µS/cm	1.81 mg/L	-19.6 mV	6.90 m	150.00 ml/min
12/9/2019 3:03 PM	27:00	6.92 pH	55.60 °F	5,106.6 µS/cm	1.54 mg/L	-24.1 mV	6.90 m	150.00 ml/min
12/9/2019 3:06 PM	30:00	6.90 pH	55.59 °F	5,418.2 µS/cm	1.28 mg/L	-25.8 mV	6.90 m	150.00 ml/min
12/9/2019 3:09 PM	33:00	6.89 pH	55.79 °F	5,446.3 µS/cm	1.24 mg/L	-27.3 mV	6.90 m	150.00 ml/min
12/9/2019 3:12 PM	36:00	6.87 pH	55.76 °F	5,951.3 µS/cm	0.99 mg/L	-28.3 mV	6.90 m	150.00 ml/min
12/9/2019 3:15 PM	39:00	6.86 pH	55.74 °F	5,810.7 µS/cm	1.08 mg/L	-24.7 mV	6.90 m	150.00 ml/min

12/9/2019 3:18 PM	42:00	6.85 pH	55.66 °F	6,099.9 µS/cm	1.02 mg/L	-25.6 mV	6.90 m	150.00 ml/min
12/9/2019 3:21 PM	45:00	6.84 pH	55.24 °F	6,204.2 µS/cm	0.96 mg/L	-22.6 mV	6.90 m	150.00 ml/min

Samples

Sample ID:	Description:
MW-504	Time: 1522 DTW: 6.90 RDO: 1.08 Ferrous Fe: 1.0

Low-Flow Test Report:

Test Date / Time: 12/11/2019 8:33:55 AM

Project: Edmonds Terminal4Q19

Operator Name: KF

Location Name: MW-526 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.45 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.26 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 8:33 AM	00:00	6.21 pH	50.53 °F	150.24 µS/cm	3.60 mg/L	85.3 mV	5.45 ft	150.00 ml/min
12/11/2019 8:36 AM	03:00	5.80 pH	51.49 °F	147.63 µS/cm	0.44 mg/L	95.4 mV	5.45 ft	150.00 ml/min
12/11/2019 8:39 AM	06:00	5.81 pH	51.62 °F	148.50 µS/cm	0.53 mg/L	97.9 mV	5.45 ft	150.00 ml/min
12/11/2019 8:42 AM	09:00	5.83 pH	51.54 °F	151.41 µS/cm	0.51 mg/L	97.9 mV	5.45 ft	150.00 ml/min
12/11/2019 8:45 AM	12:00	5.84 pH	51.60 °F	157.41 µS/cm	0.49 mg/L	98.3 mV	5.45 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-526	Sample Time: 0903 Final DTW: 5.71 Ferrous Iron: 3.0 mg/L Final RDO: 0.49 mg/L

Low-Flow Test Report:

Test Date / Time: 12/11/2019 8:38:17 AM

Project: Edmonds Terminal 4Q19 (5)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 7.46 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 6052.5 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 8:38 AM	00:00	6.45 pH	49.56 °F	5,818.4 µS/cm	7.33 mg/L	126.4 mV	7.46 ft	150.00 ml/min
12/11/2019 8:41 AM	03:00	6.29 pH	52.20 °F	5,473.0 µS/cm	0.56 mg/L	90.6 mV	7.46 ft	150.00 ml/min
12/11/2019 8:44 AM	06:00	6.35 pH	52.47 °F	4,842.3 µS/cm	0.73 mg/L	82.3 mV	7.46 ft	150.00 ml/min
12/11/2019 8:47 AM	09:00	6.54 pH	52.46 °F	3,817.9 µS/cm	2.23 mg/L	75.3 mV	7.46 ft	150.00 ml/min
12/11/2019 8:50 AM	12:00	6.61 pH	52.37 °F	3,344.6 µS/cm	2.65 mg/L	73.8 mV	7.46 ft	150.00 ml/min
12/11/2019 8:53 AM	15:00	6.68 pH	52.59 °F	2,795.5 µS/cm	2.86 mg/L	73.7 mV	7.46 ft	150.00 ml/min
12/11/2019 8:56 AM	18:00	6.76 pH	52.71 °F	2,286.8 µS/cm	3.57 mg/L	73.4 mV	7.46 ft	150.00 ml/min
12/11/2019 8:59 AM	21:00	6.75 pH	52.17 °F	2,708.1 µS/cm	3.63 mg/L	74.7 mV	7.46 ft	150.00 ml/min
12/11/2019 9:02 AM	24:00	6.79 pH	52.80 °F	1,972.0 µS/cm	3.64 mg/L	73.4 mV	7.46 ft	150.00 ml/min
12/11/2019 9:05 AM	27:00	6.79 pH	52.75 °F	1,881.3 µS/cm	3.78 mg/L	75.0 mV	7.46 ft	150.00 ml/min
12/11/2019 9:08 AM	30:00	6.74 pH	52.55 °F	2,070.7 µS/cm	3.74 mg/L	74.2 mV	7.46 ft	150.00 ml/min
12/11/2019 9:10 AM	31:56	6.76 pH	52.65 °F	1,911.0 µS/cm	3.55 mg/L	73.5 mV	7.46 ft	150.00 ml/min
12/11/2019 9:11 AM	33:26	6.79 pH	52.75 °F	1,753.9 µS/cm	3.68 mg/L	73.0 mV	7.46 ft	150.00 ml/min

12/11/2019 9:12 AM	34:21	6.79 pH	52.76 °F	1,732.1 µS/cm	3.84 mg/L	72.9 mV	7.46 ft	150.00 ml/min
12/11/2019 9:15 AM	37:21	6.79 pH	52.71 °F	1,702.6 µS/cm	3.88 mg/L	74.6 mV	7.46 ft	150.00 ml/min
12/11/2019 9:18 AM	40:21	6.79 pH	52.69 °F	1,856.3 µS/cm	3.65 mg/L	75.0 mV	7.46 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-531	Sample Time: 9:25 Final DTW: 7.46 Final RDO: 3.65 Ferrous Iron: 2.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/11/2019 8:38:20 AM

Project: Edmonds Terminal #419 (5)

Operator Name: BT

<p>Location Name: MW-532 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.02 m</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.58 in</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 8:38 AM	00:00	6.24 pH	52.63 °F	247.66 µS/cm	2.82 mg/L	212.9 mV	7.02 m	150.00 ml/min
12/11/2019 8:41 AM	03:00	6.17 pH	52.54 °F	230.22 µS/cm	2.07 mg/L	218.1 mV	7.02 m	150.00 ml/min
12/11/2019 8:44 AM	06:00	6.13 pH	52.83 °F	222.89 µS/cm	1.89 mg/L	225.6 mV	7.02 m	150.00 ml/min
12/11/2019 8:47 AM	09:00	6.13 pH	52.96 °F	217.68 µS/cm	1.66 mg/L	220.1 mV	7.02 m	150.00 ml/min
12/11/2019 8:50 AM	12:00	6.09 pH	53.16 °F	215.56 µS/cm	1.44 mg/L	222.1 mV	7.02 m	150.00 ml/min
12/11/2019 8:53 AM	15:00	6.11 pH	53.00 °F	151.60 µS/cm	1.98 mg/L	211.6 mV	7.02 m	150.00 ml/min
12/11/2019 8:56 AM	18:00	6.10 pH	53.72 °F	210.59 µS/cm	1.76 mg/L	213.1 mV	7.02 m	150.00 ml/min
12/11/2019 8:59 AM	21:00	6.07 pH	53.66 °F	210.92 µS/cm	1.45 mg/L	200.0 mV	7.02 m	150.00 ml/min
12/11/2019 9:02 AM	24:00	6.06 pH	53.75 °F	210.12 µS/cm	1.23 mg/L	187.2 mV	7.02 m	150.00 ml/min
12/11/2019 9:05 AM	27:00	6.05 pH	53.84 °F	210.02 µS/cm	1.13 mg/L	182.8 mV	7.02 m	150.00 ml/min
12/11/2019 9:08 AM	30:00	6.04 pH	53.95 °F	207.07 µS/cm	1.06 mg/L	180.8 mV	7.02 m	150.00 ml/min
12/11/2019 9:11 AM	33:00	6.04 pH	54.06 °F	206.04 µS/cm	0.87 mg/L	173.3 mV	7.02 m	150.00 ml/min
12/11/2019 9:14 AM	36:00	6.04 pH	54.23 °F	202.81 µS/cm	0.82 mg/L	169.6 mV	7.02 m	150.00 ml/min
12/11/2019 9:17 AM	39:00	6.04 pH	54.15 °F	202.54 µS/cm	0.77 mg/L	172.4 mV	7.02 m	150.00 ml/min

Samples

Sample ID:	Description:
MW-532	Time: 0922 Final DTW: 8.60 Final RDO: 0.77 Ferrous Fe: 0.0

Low-Flow Test Report:

Test Date / Time: 12/11/2019 8:40:05 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-525 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.34 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 10.5 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.96 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

50, cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 8:40 AM	00:00	6.03 pH	59.95 °F	1,263.1 µS/cm	3.27 mg/L	140.7 mV	6.34 ft	150.00 ml/min
12/11/2019 8:43 AM	03:00	5.79 pH	56.83 °F	1,396.3 µS/cm	0.79 mg/L	132.5 mV	6.34 ft	150.00 ml/min
12/11/2019 8:46 AM	06:00	5.79 pH	55.78 °F	2,354.7 µS/cm	0.67 mg/L	109.5 mV	6.34 ft	150.00 ml/min
12/11/2019 8:49 AM	09:00	5.83 pH	55.34 °F	3,924.2 µS/cm	0.46 mg/L	89.6 mV	6.34 ft	150.00 ml/min
12/11/2019 8:52 AM	12:00	5.90 pH	55.08 °F	5,877.6 µS/cm	0.28 mg/L	70.4 mV	6.34 ft	150.00 ml/min
12/11/2019 8:55 AM	15:00	6.04 pH	55.01 °F	7,318.2 µS/cm	0.26 mg/L	48.3 mV	6.34 ft	150.00 ml/min
12/11/2019 8:58 AM	18:00	6.11 pH	55.04 °F	8,370.2 µS/cm	0.24 mg/L	28.5 mV	6.34 ft	150.00 ml/min
12/11/2019 9:01 AM	21:00	6.15 pH	55.00 °F	8,959.9 µS/cm	0.22 mg/L	13.8 mV	6.34 ft	150.00 ml/min
12/11/2019 9:04 AM	24:00	6.17 pH	54.96 °F	8,998.8 µS/cm	0.22 mg/L	5.8 mV	6.34 ft	150.00 ml/min
12/11/2019 9:07 AM	27:00	6.18 pH	55.08 °F	9,165.2 µS/cm	0.20 mg/L	0.4 mV	6.34 ft	150.00 ml/min
12/11/2019 9:10 AM	30:00	6.19 pH	54.93 °F	9,210.1 µS/cm	0.21 mg/L	-3.6 mV	6.34 ft	150.00 ml/min
12/11/2019 9:13 AM	33:00	6.20 pH	54.98 °F	9,305.3 µS/cm	0.20 mg/L	-6.9 mV	6.34 ft	150.00 ml/min
12/11/2019 9:16 AM	36:00	6.20 pH	54.96 °F	9,458.6 µS/cm	0.19 mg/L	-9.8 mV	6.34 ft	150.00 ml/min

12/11/2019 9:19 AM	39:00	6.21 pH	54.68 °F	9,740.6 µS/cm	0.18 mg/L	-12.5 mV	6.34 ft	150.00 ml/min
12/11/2019 9:22 AM	42:00	6.22 pH	54.66 °F	9,654.4 µS/cm	0.17 mg/L	-15.2 mV	6.34 ft	150.00 ml/min
12/11/2019 9:25 AM	45:00	6.22 pH	54.78 °F	9,798.5 µS/cm	0.16 mg/L	-16.9 mV	6.34 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-525	Sample Time: 0930 Final DTW: 7.20 ft btoc Final RDO: 0.16 mg/L Ferrous Iron: 4.5 mg/L ORP did not stabilize after 45 minutes

Low-Flow Test Report:

Test Date / Time: 12/11/2019 9:49:23 AM

Project: Edmonds Terminal4Q19

Operator Name: KF

Location Name: LM-2 Well Diameter: 2 in Casing Type: PVC Screen Length: 5.5 ft Top of Screen: 2.5 ft Total Depth: 8 ft Initial Depth to Water: 1.71 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 5 ft Estimated Total Volume Pumped: 7200 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.03 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Weather Conditions:

Overcast

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 9:49 AM	00:00	5.80 pH	51.95 °F	9,770.5 µS/cm	3.65 mg/L	37.1 mV	1.71 ft	150.00 ml/min
12/11/2019 9:52 AM	03:00	6.00 pH	52.83 °F	9,682.2 µS/cm	0.19 mg/L	-21.6 mV	1.71 ft	150.00 ml/min
12/11/2019 9:55 AM	06:00	6.01 pH	52.86 °F	9,658.1 µS/cm	0.17 mg/L	-38.3 mV	1.71 ft	150.00 ml/min
12/11/2019 9:58 AM	09:00	6.03 pH	52.68 °F	9,662.6 µS/cm	0.16 mg/L	-44.6 mV	1.71 ft	150.00 ml/min
12/11/2019 10:01 AM	12:00	6.03 pH	52.70 °F	9,683.5 µS/cm	0.14 mg/L	-48.5 mV	1.71 ft	150.00 ml/min
12/11/2019 10:04 AM	15:00	6.04 pH	52.75 °F	9,700.0 µS/cm	0.12 mg/L	-52.2 mV	1.71 ft	150.00 ml/min
12/11/2019 10:07 AM	18:00	6.04 pH	53.01 °F	9,710.4 µS/cm	0.11 mg/L	-57.5 mV	1.71 ft	150.00 ml/min
12/11/2019 10:10 AM	21:00	6.05 pH	53.09 °F	9,720.0 µS/cm	0.15 mg/L	-61.9 mV	1.71 ft	150.00 ml/min
12/11/2019 10:13 AM	24:00	6.05 pH	53.06 °F	9,699.4 µS/cm	0.10 mg/L	-65.5 mV	1.71 ft	150.00 ml/min
12/11/2019 10:16 AM	27:00	6.05 pH	53.05 °F	9,767.9 µS/cm	0.12 mg/L	-68.0 mV	1.71 ft	150.00 ml/min
12/11/2019 10:19 AM	30:00	6.06 pH	53.09 °F	9,837.9 µS/cm	0.14 mg/L	-69.6 mV	1.71 ft	150.00 ml/min
12/11/2019 10:22 AM	33:00	6.06 pH	53.05 °F	9,885.1 µS/cm	0.09 mg/L	-70.9 mV	1.71 ft	150.00 ml/min

12/11/2019 10:25 AM	36:00	6.07 pH	53.07 °F	9,945.1 µS/cm	0.11 mg/L	-72.8 mV	1.71 ft	150.00 ml/min
12/11/2019 10:28 AM	39:00	6.08 pH	53.11 °F	9,992.7 µS/cm	0.11 mg/L	-74.7 mV	1.71 ft	150.00 ml/min
12/11/2019 10:31 AM	42:00	6.08 pH	53.10 °F	10,091 µS/cm	0.05 mg/L	-76.9 mV	1.71 ft	150.00 ml/min
12/11/2019 10:34 AM	45:00	6.09 pH	53.08 °F	10,159 µS/cm	0.04 mg/L	-78.6 mV	1.71 ft	150.00 ml/min
12/11/2019 10:37 AM	48:00	6.10 pH	53.12 °F	10,221 µS/cm	0.04 mg/L	-80.3 mV	1.71 ft	150.00 ml/min

Samples

Sample ID:	Description:
LM-2	Sample Time: 1053 Final DTW: 2.74 Ferrous Iron: 7.0 mg/L Final RDO: 0.04 mg/L

Low-Flow Test Report:

Test Date / Time: 12/11/2019 10:11:44 AM

Project: Edmonds Terminal #419 (6)

Operator Name: BT

Location Name: MW-533 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.3 m	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 10:11 AM	00:00	6.62 pH	51.21 °F	4,619.0 µS/cm	7.50 mg/L	171.7 mV	5.30 m	150.00 ml/min
12/11/2019 10:14 AM	03:00	7.51 pH	51.49 °F	4,739.6 µS/cm	0.51 mg/L	142.3 mV	5.30 m	150.00 ml/min
12/11/2019 10:17 AM	06:00	7.57 pH	51.50 °F	4,728.4 µS/cm	0.40 mg/L	130.0 mV	5.30 m	150.00 ml/min
12/11/2019 10:20 AM	09:00	7.59 pH	51.57 °F	4,721.8 µS/cm	0.45 mg/L	121.0 mV	5.30 m	150.00 ml/min
12/11/2019 10:23 AM	12:00	7.60 pH	51.54 °F	4,637.4 µS/cm	0.65 mg/L	118.2 mV	5.30 m	150.00 ml/min
12/11/2019 10:26 AM	15:00	7.61 pH	51.47 °F	4,614.8 µS/cm	0.71 mg/L	113.3 mV	5.30 m	150.00 ml/min
12/11/2019 10:29 AM	18:00	7.61 pH	51.42 °F	4,615.0 µS/cm	0.87 mg/L	112.1 mV	5.30 m	150.00 ml/min
12/11/2019 10:32 AM	21:00	7.61 pH	51.38 °F	4,545.9 µS/cm	0.95 mg/L	110.1 mV	5.30 m	150.00 ml/min
12/11/2019 10:35 AM	24:00	7.62 pH	51.39 °F	4,494.0 µS/cm	0.92 mg/L	110.3 mV	5.30 m	150.00 ml/min

Samples

Sample ID:	Description:
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MW-533	Time: 1042 Final DTW: 5.31 Final RDO: 0.97 Ferrous Fe: 0.0
DUP-2	

Created using VuSitu from In-Situ, Inc.

Low-Flow Test Report:

Test Date / Time: 12/11/2019 10:17:49 AM

Project: Edmonds Terminal 4Q19 (6)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 7.11 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.52 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Rainy

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 10:17 AM	00:00	6.85 pH	51.72 °F	1,243.8 µS/cm	5.62 mg/L	-39.7 mV	7.11 ft	150.00 ml/min
12/11/2019 10:20 AM	03:00	6.77 pH	54.72 °F	1,117.0 µS/cm	0.27 mg/L	-90.7 mV	7.11 ft	150.00 ml/min
12/11/2019 10:23 AM	06:00	6.76 pH	55.07 °F	1,069.0 µS/cm	0.16 mg/L	-99.2 mV	7.11 ft	150.00 ml/min
12/11/2019 10:26 AM	09:00	6.75 pH	55.21 °F	1,017.2 µS/cm	0.13 mg/L	-103.6 mV	7.11 ft	150.00 ml/min
12/11/2019 10:29 AM	12:00	6.75 pH	55.53 °F	911.55 µS/cm	0.09 mg/L	-106.5 mV	7.11 ft	150.00 ml/min
12/11/2019 10:32 AM	15:00	6.74 pH	55.69 °F	958.90 µS/cm	0.07 mg/L	-109.6 mV	7.11 ft	150.00 ml/min
12/11/2019 10:35 AM	18:00	6.74 pH	55.68 °F	928.40 µS/cm	0.09 mg/L	-111.4 mV	7.11 ft	150.00 ml/min
12/11/2019 10:38 AM	21:00	6.75 pH	55.47 °F	1,111.7 µS/cm	0.21 mg/L	-78.7 mV	7.11 ft	150.00 ml/min
12/11/2019 10:41 AM	24:00	6.74 pH	55.50 °F	1,034.1 µS/cm	0.15 mg/L	-73.3 mV	7.11 ft	150.00 ml/min
12/11/2019 10:44 AM	27:00	6.74 pH	55.53 °F	989.08 µS/cm	0.13 mg/L	-71.3 mV	7.11 ft	150.00 ml/min
12/11/2019 10:47 AM	30:00	6.74 pH	55.58 °F	1,013.8 µS/cm	0.12 mg/L	-71.8 mV	7.11 ft	150.00 ml/min
12/11/2019 10:50 AM	33:00	6.74 pH	55.79 °F	902.75 µS/cm	0.08 mg/L	-73.1 mV	7.11 ft	150.00 ml/min
12/11/2019 10:53 AM	36:00	6.74 pH	55.83 °F	924.76 µS/cm	0.07 mg/L	-74.4 mV	7.11 ft	150.00 ml/min

12/11/2019 10:56 AM	39:00	6.74 pH	55.64 °F	942.87 µS/cm	0.06 mg/L	-75.7 mV	7.11 ft	150.00 ml/min
12/11/2019 10:59 AM	42:00	6.74 pH	55.64 °F	964.03 µS/cm	0.05 mg/L	-76.5 mV	7.11 ft	150.00 ml/min
12/11/2019 11:02 AM	45:00	6.74 pH	55.57 °F	1,007.7 µS/cm	0.05 mg/L	-77.5 mV	7.11 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-ER	Sample Time: 11:05 Final DTW: 7.63 Final RDO: 0.05 Ferrous Iron: 6.0

Low-Flow Test Report:

Test Date / Time: 12/11/2019 10:47:21 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-129R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 5.68 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 9.5 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.3 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

45, cloudy with light rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 10:47 AM	00:00	6.87 pH	51.33 °F	1,529.1 µS/cm	1.60 mg/L	-75.2 mV	5.68 ft	150.00 ml/min
12/11/2019 10:50 AM	03:00	6.87 pH	50.97 °F	1,135.2 µS/cm	0.46 mg/L	-86.8 mV	5.68 ft	150.00 ml/min
12/11/2019 10:53 AM	06:00	6.87 pH	51.51 °F	1,382.7 µS/cm	0.19 mg/L	-91.4 mV	5.68 ft	150.00 ml/min
12/11/2019 10:56 AM	09:00	6.85 pH	51.83 °F	1,377.7 µS/cm	0.16 mg/L	-94.4 mV	5.68 ft	150.00 ml/min
12/11/2019 10:59 AM	12:00	6.84 pH	52.06 °F	1,372.8 µS/cm	0.15 mg/L	-97.4 mV	5.68 ft	150.00 ml/min
12/11/2019 11:02 AM	15:00	6.85 pH	51.81 °F	1,370.0 µS/cm	0.15 mg/L	-98.5 mV	5.68 ft	150.00 ml/min
12/11/2019 11:05 AM	18:00	6.84 pH	51.65 °F	1,370.9 µS/cm	0.15 mg/L	-98.0 mV	5.68 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-129R	Sample Time: 1120 Final DTW: 5.98 Final RDO: 0.15 mg/L Ferrous Iron: 7.5 mg/L ORP did stabilize but did not appear stable due to negative number.

Low-Flow Test Report:

Test Date / Time: 12/11/2019 11:43:26 AM

Project: Edmonds Terminal #419 (7)

Operator Name: BT

<p>Location Name: MW-143 Well Diameter: 2 in Casing Type: Pvc Screen Length: 10.6 ft Top of Screen: 3.5 ft Total Depth: 14.1 ft Initial Depth to Water: 5.16 m</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 4050 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 1.81 m</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 11:43 AM	00:00	6.62 pH	51.94 °F	976.71 µS/cm	1.05 mg/L	-24.3 mV	5.16 m	150.00 ml/min
12/11/2019 11:46 AM	03:00	6.55 pH	52.96 °F	363.57 µS/cm	0.53 mg/L	-63.9 mV	5.16 m	150.00 ml/min
12/11/2019 11:49 AM	06:00	6.49 pH	52.89 °F	271.23 µS/cm	0.34 mg/L	-78.9 mV	5.16 m	150.00 ml/min
12/11/2019 11:52 AM	09:00	6.46 pH	53.01 °F	249.00 µS/cm	0.33 mg/L	-91.7 mV	5.16 m	150.00 ml/min
12/11/2019 11:55 AM	12:00	6.46 pH	53.00 °F	244.72 µS/cm	0.34 mg/L	-105.1 mV	5.16 m	150.00 ml/min
12/11/2019 11:58 AM	15:00	6.45 pH	53.07 °F	247.21 µS/cm	0.37 mg/L	-112.7 mV	5.16 m	150.00 ml/min
12/11/2019 12:01 PM	18:00	6.46 pH	53.05 °F	252.68 µS/cm	0.45 mg/L	-119.4 mV	5.16 m	150.00 ml/min
12/11/2019 12:04 PM	21:00	6.46 pH	52.96 °F	258.64 µS/cm	0.54 mg/L	-121.9 mV	5.16 m	150.00 ml/min
12/11/2019 12:07 PM	24:00	6.47 pH	53.01 °F	259.07 µS/cm	0.55 mg/L	-123.5 mV	5.16 m	150.00 ml/min
12/11/2019 12:10 PM	27:00	6.45 pH	53.05 °F	261.55 µS/cm	0.57 mg/L	-123.1 mV	5.16 m	150.00 ml/min

Samples

Sample ID:	Description:
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MW-143

Time: 1212
Final DTW: 7.11
Final RDO: 0.56
Ferrous Fe: 5.5

Low-Flow Test Report:

Test Date / Time: 12/11/2019 11:56:22 AM

Project: Edmonds Terminal 4Q19 (7)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 4.5 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 5850 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 2.3 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Rainy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 11:56 AM	00:00	7.16 pH	51.37 °F	394.07 µS/cm	2.53 mg/L	1.0 mV	4.50 ft	150.00 ml/min
12/11/2019 11:59 AM	03:00	7.00 pH	51.44 °F	394.98 µS/cm	1.92 mg/L	42.4 mV	4.50 ft	150.00 ml/min
12/11/2019 12:02 PM	06:00	6.96 pH	51.36 °F	385.76 µS/cm	1.24 mg/L	57.8 mV	4.50 ft	150.00 ml/min
12/11/2019 12:05 PM	09:00	6.95 pH	51.28 °F	334.90 µS/cm	1.34 mg/L	65.0 mV	4.50 ft	150.00 ml/min
12/11/2019 12:08 PM	12:00	6.94 pH	51.32 °F	322.51 µS/cm	1.18 mg/L	71.5 mV	4.50 ft	150.00 ml/min
12/11/2019 12:11 PM	15:00	6.94 pH	51.25 °F	169.52 µS/cm	1.19 mg/L	76.3 mV	4.50 ft	150.00 ml/min
12/11/2019 12:14 PM	18:00	6.93 pH	51.19 °F	2.31 µS/cm	1.01 mg/L	80.5 mV	4.50 ft	150.00 ml/min
12/11/2019 12:17 PM	21:00	6.92 pH	51.39 °F	387.68 µS/cm	1.02 mg/L	84.4 mV	4.50 ft	150.00 ml/min
12/11/2019 12:20 PM	24:00	6.92 pH	51.44 °F	384.29 µS/cm	1.00 mg/L	87.9 mV	4.50 ft	150.00 ml/min
12/11/2019 12:23 PM	27:00	6.91 pH	51.49 °F	387.42 µS/cm	0.95 mg/L	90.8 mV	4.50 ft	150.00 ml/min
12/11/2019 12:26 PM	30:00	6.92 pH	51.44 °F	383.70 µS/cm	0.73 mg/L	93.2 mV	4.50 ft	150.00 ml/min
12/11/2019 12:29 PM	33:00	6.92 pH	51.45 °F	383.97 µS/cm	0.70 mg/L	95.1 mV	4.50 ft	150.00 ml/min
12/11/2019 12:32 PM	36:00	6.91 pH	51.42 °F	384.51 µS/cm	0.62 mg/L	97.4 mV	4.50 ft	150.00 ml/min

12/11/2019 12:35 PM	39:00	6.91 pH	51.47 °F	384.25 µS/cm	0.68 mg/L	99.7 mV	4.50 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-126	Sample Time: 12:55 Final DTW: 6.7 ft btoc Final RDO: 0.68 mg/L Ferrous Iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/11/2019 12:05:02 PM

Project: Edmonds Terminal 4Q19

Operator Name: KF

Location Name: MW-521 Well Diameter: 2 cm Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 6.36 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 2700 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

Metals Batch QC collected

Weather Conditions:

Rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 12:05 PM	00:00	6.90 pH	56.37 °F	950.20 µS/cm	4.54 mg/L	3.4 mV	6.36 ft	150.00 ml/min
12/11/2019 12:08 PM	03:00	6.79 pH	54.81 °F	954.21 µS/cm	2.02 mg/L	-6.1 mV	6.36 ft	150.00 ml/min
12/11/2019 12:11 PM	06:00	6.76 pH	54.63 °F	933.04 µS/cm	2.17 mg/L	-5.9 mV	6.36 ft	150.00 ml/min
12/11/2019 12:14 PM	09:00	6.78 pH	54.25 °F	943.61 µS/cm	2.10 mg/L	-5.2 mV	6.36 ft	150.00 ml/min
12/11/2019 12:17 PM	12:00	6.78 pH	54.02 °F	942.00 µS/cm	2.18 mg/L	-4.6 mV	6.36 ft	150.00 ml/min
12/11/2019 12:20 PM	15:00	6.78 pH	53.85 °F	929.74 µS/cm	2.31 mg/L	-4.3 mV	6.36 ft	150.00 ml/min
12/11/2019 12:23 PM	18:00	6.77 pH	53.79 °F	953.32 µS/cm	2.10 mg/L	-4.3 mV	6.36 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-521

Sample Time: 1243

Final DTW: 6.36

Ferrous Iron: 2.0 mg/L

Final RDO: 2.10 mg/L

Low-Flow Test Report:

Test Date / Time: 12/11/2019 12:08:32 PM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-519 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 9.5 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 9.5 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.01 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

45, rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/11/2019 12:08 PM	00:00	7.16 pH	52.63 °F	661.91 µS/cm	3.59 mg/L	32.8 mV	9.50 ft	150.00 ml/min
12/11/2019 12:11 PM	03:00	6.95 pH	53.32 °F	643.44 µS/cm	0.34 mg/L	33.8 mV	9.50 ft	150.00 ml/min
12/11/2019 12:14 PM	06:00	6.93 pH	53.46 °F	651.71 µS/cm	0.71 mg/L	30.6 mV	9.50 ft	150.00 ml/min
12/11/2019 12:17 PM	09:00	6.93 pH	53.51 °F	659.58 µS/cm	1.42 mg/L	29.7 mV	9.50 ft	150.00 ml/min
12/11/2019 12:20 PM	12:00	6.93 pH	53.59 °F	664.61 µS/cm	1.80 mg/L	28.8 mV	9.50 ft	150.00 ml/min
12/11/2019 12:23 PM	15:00	6.93 pH	53.66 °F	668.70 µS/cm	2.18 mg/L	27.6 mV	9.50 ft	150.00 ml/min
12/11/2019 12:26 PM	18:00	6.93 pH	53.70 °F	687.39 µS/cm	2.47 mg/L	27.0 mV	9.50 ft	150.00 ml/min
12/11/2019 12:29 PM	21:00	6.95 pH	53.53 °F	691.32 µS/cm	3.05 mg/L	26.3 mV	9.50 ft	150.00 ml/min
12/11/2019 12:32 PM	24:00	6.94 pH	53.61 °F	691.07 µS/cm	2.77 mg/L	25.4 mV	9.50 ft	150.00 ml/min
12/11/2019 12:35 PM	27:00	6.94 pH	53.55 °F	705.45 µS/cm	3.01 mg/L	25.2 mV	9.50 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-519

Sample Time: 1240
Final DTW: 6.79 ft btoc
Final RDO: 3.01 mg/L
Ferrous Iron: 0.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/12/2019 8:58:51 AM

Project: Edmonds Terminal #419 (8)

Operator Name: BT

<p>Location Name: MW-104 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 7.9 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.13 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 8:58 AM	00:00	6.55 pH	51.12 °F	4,991.9 µS/cm	11.61 mg/L	130.1 mV	7.90 ft	150.00 ml/min
12/12/2019 9:01 AM	03:00	6.36 pH	55.23 °F	6,350.9 µS/cm	2.47 mg/L	4.5 mV	7.90 ft	150.00 ml/min
12/12/2019 9:04 AM	06:00	6.36 pH	55.38 °F	6,403.8 µS/cm	1.14 mg/L	-26.5 mV	7.90 ft	150.00 ml/min
12/12/2019 9:07 AM	09:00	6.36 pH	55.52 °F	6,303.2 µS/cm	1.08 mg/L	-42.5 mV	7.90 ft	150.00 ml/min
12/12/2019 9:10 AM	12:00	6.36 pH	55.54 °F	6,279.8 µS/cm	0.83 mg/L	-41.4 mV	7.90 ft	150.00 ml/min
12/12/2019 9:13 AM	15:00	6.37 pH	55.49 °F	6,272.5 µS/cm	3.09 mg/L	-38.1 mV	7.90 ft	150.00 ml/min
12/12/2019 9:16 AM	18:00	6.38 pH	55.41 °F	6,069.3 µS/cm	1.34 mg/L	-34.3 mV	7.90 ft	150.00 ml/min
12/12/2019 9:19 AM	21:00	6.38 pH	55.08 °F	6,099.8 µS/cm	1.60 mg/L	-39.9 mV	7.90 ft	150.00 ml/min
12/12/2019 9:22 AM	24:00	6.38 pH	54.91 °F	5,765.5 µS/cm	1.81 mg/L	-43.4 mV	7.90 ft	150.00 ml/min
12/12/2019 9:25 AM	27:00	6.39 pH	55.24 °F	5,931.3 µS/cm	1.39 mg/L	-43.4 mV	7.90 ft	150.00 ml/min
12/12/2019 9:28 AM	30:00	6.40 pH	55.09 °F	6,015.8 µS/cm	1.48 mg/L	-44.1 mV	7.90 ft	150.00 ml/min
12/12/2019 9:31 AM	33:00	6.39 pH	55.02 °F	5,697.8 µS/cm	2.39 mg/L	-48.4 mV	7.90 ft	150.00 ml/min
12/12/2019 9:34 AM	36:00	6.39 pH	54.79 °F	6,007.9 µS/cm	2.18 mg/L	-35.8 mV	7.90 ft	150.00 ml/min
12/12/2019 9:37 AM	39:00	6.39 pH	54.99 °F	5,954.6 µS/cm	1.46 mg/L	-43.8 mV	7.90 ft	150.00 ml/min

12/12/2019 9:40 AM	42:00	6.40 pH	55.20 °F	5,928.4 µS/cm	1.73 mg/L	-42.1 mV	7.90 ft	150.00 ml/min
12/12/2019 9:43 AM	45:00	6.41 pH	55.08 °F	5,783.7 µS/cm	2.18 mg/L	-42.9 mV	7.90 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-104	Sample Time: 0952 Final DTW: 8.03 Final RDO: 2.18 Ferrous Fe: 6.5 RDO did not stabilize after 45 min

Low-Flow Test Report:

Test Date / Time: 12/12/2019 9:01:33 AM

Project: Edmonds Terminal 4Q19

Operator Name: KF

<p>Location Name: MW-534 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 3.64 ft</p>	<p>Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 9 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.07 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472</p>
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Test Notes:

Weather Conditions:

Rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 9:01 AM	00:00	6.57 pH	52.37 °F	6,408.6 µS/cm	3.87 mg/L	-23.7 mV	3.64 ft	150.00 ml/min
12/12/2019 9:04 AM	03:00	6.60 pH	52.64 °F	7,592.3 µS/cm	0.54 mg/L	-33.4 mV	3.64 ft	150.00 ml/min
12/12/2019 9:07 AM	06:00	6.64 pH	52.82 °F	7,197.5 µS/cm	0.24 mg/L	-43.4 mV	3.64 ft	150.00 ml/min
12/12/2019 9:10 AM	09:00	6.66 pH	52.96 °F	7,393.0 µS/cm	0.21 mg/L	-46.4 mV	3.64 ft	150.00 ml/min
12/12/2019 9:13 AM	12:00	6.66 pH	53.03 °F	7,252.8 µS/cm	0.24 mg/L	-48.2 mV	3.64 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-534	<p>Sample Time: 0943 Final DTW: 3.71 Ferrous Iron: 3.5 mg/L Final RDO: 0.24 mg/L</p>

Low-Flow Test Report:

Test Date / Time: 12/12/2019 9:06:21 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

Location Name: MW-20R Well Diameter: 2 in Casing Type: PVC Screen Length: 10.5 ft Top of Screen: 4 ft Total Depth: 14.5 ft Initial Depth to Water: 6.06 ft	Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 10 ft Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.07 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586
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Test Notes:

Weather Conditions:

45, heavy rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 9:06 AM	00:00	6.51 pH	51.32 °F	7,723.8 µS/cm	1.54 mg/L	95.6 mV	6.06 ft	150.00 ml/min
12/12/2019 9:09 AM	03:00	6.50 pH	52.05 °F	8,478.4 µS/cm	0.22 mg/L	76.0 mV	6.06 ft	150.00 ml/min
12/12/2019 9:12 AM	06:00	6.59 pH	52.80 °F	10,326 µS/cm	0.18 mg/L	48.5 mV	6.06 ft	150.00 ml/min
12/12/2019 9:15 AM	09:00	6.66 pH	53.27 °F	12,591 µS/cm	0.19 mg/L	15.3 mV	6.06 ft	150.00 ml/min
12/12/2019 9:18 AM	12:00	6.69 pH	53.38 °F	14,610 µS/cm	1.12 mg/L	-2.6 mV	6.06 ft	150.00 ml/min
12/12/2019 9:21 AM	15:00	6.71 pH	53.68 °F	19,665 µS/cm	0.22 mg/L	-16.6 mV	6.06 ft	150.00 ml/min
12/12/2019 9:24 AM	18:00	6.73 pH	53.87 °F	21,182 µS/cm	0.09 mg/L	-19.1 mV	6.06 ft	150.00 ml/min
12/12/2019 9:27 AM	21:00	6.75 pH	54.05 °F	21,768 µS/cm	0.07 mg/L	-24.2 mV	6.06 ft	150.00 ml/min
12/12/2019 9:30 AM	24:00	6.75 pH	54.14 °F	22,060 µS/cm	0.06 mg/L	-31.3 mV	6.06 ft	150.00 ml/min
12/12/2019 9:33 AM	27:00	6.75 pH	54.16 °F	22,140 µS/cm	0.06 mg/L	-35.5 mV	6.06 ft	150.00 ml/min
12/12/2019 9:36 AM	30:00	6.75 pH	54.24 °F	22,513 µS/cm	0.06 mg/L	-39.1 mV	6.06 ft	150.00 ml/min
12/12/2019 9:39 AM	33:00	6.76 pH	54.34 °F	22,615 µS/cm	0.06 mg/L	-43.1 mV	6.06 ft	150.00 ml/min
12/12/2019 9:42 AM	36:00	6.75 pH	54.33 °F	22,696 µS/cm	0.05 mg/L	-44.9 mV	6.06 ft	150.00 ml/min

12/12/2019 9:45 AM	39:00	6.75 pH	54.43 °F	22,798 µS/cm	0.05 mg/L	-47.3 mV	6.06 ft	150.00 ml/min
12/12/2019 9:48 AM	42:00	6.75 pH	54.47 °F	22,661 µS/cm	0.05 mg/L	-48.7 mV	6.06 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-20R	Sample Time: 1000 Final DTW: 6.13 mg/L Final RDO: 0.05 mg/L Ferrous Iron: 5.5 mg/L

Low-Flow Test Report:

Test Date / Time: 12/12/2019 9:07:05 AM

Project: Edmonds Terminal 4Q19 (8)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 4.54 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 3600 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Rainy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 9:07 AM	00:00	5.86 pH	48.58 °F	0.46 µS/cm	11.73 mg/L	182.0 mV	4.54 ft	150.00 ml/min
12/12/2019 9:10 AM	03:00	5.96 pH	48.75 °F	0.50 µS/cm	11.75 mg/L	145.2 mV	4.54 ft	150.00 ml/min
12/12/2019 9:13 AM	06:00	5.91 pH	48.90 °F	0.48 µS/cm	11.74 mg/L	147.2 mV	4.54 ft	150.00 ml/min
12/12/2019 9:16 AM	09:00	5.89 pH	49.04 °F	0.46 µS/cm	11.72 mg/L	147.7 mV	4.54 ft	150.00 ml/min
12/12/2019 9:19 AM	12:00	5.88 pH	49.16 °F	0.46 µS/cm	11.70 mg/L	147.6 mV	4.54 ft	150.00 ml/min
12/12/2019 9:22 AM	15:00	5.86 pH	49.27 °F	0.45 µS/cm	11.69 mg/L	147.4 mV	4.54 ft	150.00 ml/min
12/12/2019 9:25 AM	18:00	5.86 pH	49.36 °F	0.45 µS/cm	11.67 mg/L	147.4 mV	4.54 ft	150.00 ml/min
12/12/2019 9:28 AM	21:00	5.85 pH	49.45 °F	0.45 µS/cm	11.65 mg/L	147.4 mV	4.54 ft	150.00 ml/min
12/12/2019 9:31 AM	24:00	5.84 pH	49.52 °F	0.45 µS/cm	11.66 mg/L	147.4 mV	4.54 ft	150.00 ml/min

Samples

Sample ID:	Description:
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MW-535	Sample Time: 9.45 Final DTW: 4.54 ft btoc Final RDO: 11.66 mg/L Ferrous Iron: 0.0 mg/L
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Low-Flow Test Report:

Test Date / Time: 12/12/2019 9:56:42 AM

Project: Edmonds Terminal 4Q19

Operator Name: KF

Location Name: MW-522 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.88 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

DUPS-3 Collected

ORP did not stabilize

Weather Conditions:

Rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 9:56 AM	00:00	7.28 pH	54.21 °F	1,361.2 µS/cm	3.81 mg/L	-33.4 mV	7.88 ft	150.00 ml/min
12/12/2019 9:59 AM	03:00	6.74 pH	54.43 °F	1,303.2 µS/cm	0.25 mg/L	-8.2 mV	7.88 ft	150.00 ml/min
12/12/2019 10:02 AM	06:00	6.71 pH	54.43 °F	1,302.0 µS/cm	0.34 mg/L	0.2 mV	7.88 ft	150.00 ml/min
12/12/2019 10:05 AM	09:00	6.69 pH	54.49 °F	1,298.9 µS/cm	0.36 mg/L	3.7 mV	7.88 ft	150.00 ml/min
12/12/2019 10:08 AM	12:00	6.68 pH	54.55 °F	1,295.2 µS/cm	0.29 mg/L	5.0 mV	7.88 ft	150.00 ml/min
12/12/2019 10:11 AM	15:00	6.69 pH	54.43 °F	1,294.2 µS/cm	0.41 mg/L	6.2 mV	7.88 ft	150.00 ml/min
12/12/2019 10:14 AM	18:00	6.69 pH	53.99 °F	1,287.8 µS/cm	0.46 mg/L	7.1 mV	7.88 ft	150.00 ml/min
12/12/2019 10:17 AM	21:00	6.69 pH	53.98 °F	1,292.2 µS/cm	0.44 mg/L	7.8 mV	7.88 ft	150.00 ml/min
12/12/2019 10:20 AM	24:00	6.68 pH	54.06 °F	1,293.7 µS/cm	0.38 mg/L	8.6 mV	7.88 ft	150.00 ml/min
12/12/2019 10:23 AM	27:00	6.68 pH	53.95 °F	1,293.0 µS/cm	0.49 mg/L	8.6 mV	7.88 ft	150.00 ml/min
12/12/2019 10:26 AM	30:00	6.68 pH	54.10 °F	1,293.3 µS/cm	0.50 mg/L	6.9 mV	7.88 ft	150.00 ml/min
12/12/2019 10:29 AM	33:00	6.68 pH	54.16 °F	1,295.6 µS/cm	0.49 mg/L	5.6 mV	7.88 ft	150.00 ml/min

12/12/2019 10:32 AM	36:00	6.68 pH	54.19 °F	1,291.6 µS/cm	0.45 mg/L	4.6 mV	7.88 ft	150.00 ml/min
12/12/2019 10:35 AM	39:00	6.67 pH	54.18 °F	1,292.4 µS/cm	0.49 mg/L	3.8 mV	7.88 ft	150.00 ml/min
12/12/2019 10:38 AM	42:00	6.68 pH	54.12 °F	1,290.1 µS/cm	0.49 mg/L	3.1 mV	7.88 ft	150.00 ml/min
12/12/2019 10:41 AM	45:00	6.68 pH	54.06 °F	1,292.4 µS/cm	0.47 mg/L	0.4 mV	7.88 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-522	Sample Time: 1103 Final DTW: 7.88 mg/L Ferrous Iron: 0.5 mg/L Final RDO: 0.47
DUP-3	

Low-Flow Test Report:

Test Date / Time: 12/12/2019 10:19:36 AM

Project: Edmonds Terminal 4Q19 (9)

Operator Name: DSG

Location Name: Device Location Initial Depth to Water: 7.34 ft	Pump Type: Peristaltic Tubing Type: Polyethylene Pump Intake From TOC: 10 ft Estimated Total Volume Pumped: 1800 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 467545
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Test Notes:

Weather Conditions:

Cloudy

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 10:19 AM	00:00	5.70 pH	50.25 °F	0.45 µS/cm	11.80 mg/L	151.3 mV	7.34 ft	150.00 ml/min
12/12/2019 10:22 AM	03:00	5.70 pH	50.25 °F	0.46 µS/cm	11.53 mg/L	150.9 mV	7.34 ft	150.00 ml/min
12/12/2019 10:25 AM	06:00	5.71 pH	50.28 °F	0.45 µS/cm	11.54 mg/L	151.0 mV	7.34 ft	150.00 ml/min
12/12/2019 10:28 AM	09:00	5.70 pH	50.30 °F	0.44 µS/cm	11.57 mg/L	151.1 mV	7.34 ft	150.00 ml/min
12/12/2019 10:31 AM	12:00	5.70 pH	50.32 °F	0.44 µS/cm	11.62 mg/L	151.2 mV	7.34 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-520	Sample Time: 10:35 Final DTW: 7.34 btoc Final RDO: 11.62 mg/L Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 12/12/2019 10:31:19 AM

Project: Edmonds Terminal #419 (9)

Operator Name: BT

<p>Location Name: MW-101 Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 5 ft Total Depth: 15 ft Initial Depth to Water: 8.77 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.17 x 1/4 Pump Intake From TOC: 3 m Estimated Total Volume Pumped: 3150 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.21 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 565206</p>
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Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 10:31 AM	00:00	6.61 pH	53.05 °F	4,604.9 µS/cm	7.70 mg/L	-47.7 mV	8.77 ft	150.00 ml/min
12/12/2019 10:34 AM	03:00	7.09 pH	56.25 °F	3,436.6 µS/cm	0.42 mg/L	-98.6 mV	8.77 ft	150.00 ml/min
12/12/2019 10:37 AM	06:00	7.10 pH	56.38 °F	3,508.2 µS/cm	0.69 mg/L	-113.2 mV	8.77 ft	150.00 ml/min
12/12/2019 10:40 AM	09:00	7.09 pH	56.55 °F	3,554.9 µS/cm	0.53 mg/L	-116.4 mV	8.77 ft	150.00 ml/min
12/12/2019 10:43 AM	12:00	7.09 pH	56.79 °F	3,885.7 µS/cm	0.38 mg/L	-128.1 mV	8.77 ft	150.00 ml/min
12/12/2019 10:46 AM	15:00	7.09 pH	57.04 °F	3,993.9 µS/cm	0.30 mg/L	-130.7 mV	8.77 ft	150.00 ml/min
12/12/2019 10:49 AM	18:00	7.08 pH	57.17 °F	4,052.7 µS/cm	0.28 mg/L	-127.8 mV	8.77 ft	150.00 ml/min
12/12/2019 10:52 AM	21:00	7.07 pH	57.27 °F	4,078.6 µS/cm	0.30 mg/L	-126.7 mV	8.77 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-101	<p>Sample Time: 1102 Final DTW: 8.97 Final RDO: 0.59 Ferrous Fe: 7.0</p>

Low-Flow Test Report:

Test Date / Time: 12/12/2019 10:41:50 AM

Project: Edmonds Terminal 4Q19

Operator Name: KCZ

<p>Location Name: MW-530 Well Diameter: 1 in Casing Type: PVC Screen Length: 5 ft Top of Screen: 3 ft Total Depth: 8 ft Initial Depth to Water: 6.16 ft</p>	<p>Pump Type: Geotech Geopump Series 2 Tubing Type: Polyethylene 0.170 x 1/4 Pump Intake From TOC: 7.5 ft Estimated Total Volume Pumped: 0 gal Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0.64 ft</p>	<p>Instrument Used: Aqua TROLL 600 Vented Serial Number: 466586</p>
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Test Notes:

Weather Conditions:

45, cloudy light rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 10:41 AM	00:00	6.65 pH	50.57 °F	27,829 µS/cm	2.43 mg/L	-112.6 mV	6.16 ft	150.00 ml/min
12/12/2019 10:44 AM	03:00	6.63 pH	51.14 °F	29,513 µS/cm	0.30 mg/L	-140.9 mV	6.16 ft	150.00 ml/min
12/12/2019 10:47 AM	06:00	6.63 pH	51.35 °F	29,472 µS/cm	0.15 mg/L	-163.0 mV	6.16 ft	150.00 ml/min
12/12/2019 10:50 AM	09:00	6.64 pH	51.38 °F	29,446 µS/cm	0.12 mg/L	-174.5 mV	6.16 ft	150.00 ml/min
12/12/2019 10:53 AM	12:00	6.64 pH	51.47 °F	29,655 µS/cm	0.10 mg/L	-187.7 mV	6.16 ft	150.00 ml/min
12/12/2019 10:56 AM	15:00	6.64 pH	51.65 °F	29,345 µS/cm	0.08 mg/L	-202.2 mV	6.16 ft	150.00 ml/min
12/12/2019 10:59 AM	18:00	6.64 pH	51.74 °F	29,239 µS/cm	0.08 mg/L	-217.2 mV	6.16 ft	150.00 ml/min
12/12/2019 11:02 AM	21:00	6.65 pH	51.72 °F	28,972 µS/cm	0.07 mg/L	-231.0 mV	6.16 ft	150.00 ml/min
12/12/2019 11:05 AM	24:00	6.65 pH	51.66 °F	28,734 µS/cm	0.07 mg/L	-242.7 mV	6.16 ft	150.00 ml/min
12/12/2019 11:08 AM	27:00	6.66 pH	51.68 °F	28,558 µS/cm	0.06 mg/L	-251.3 mV	6.16 ft	150.00 ml/min
12/12/2019 11:11 AM	30:00	6.65 pH	51.79 °F	28,261 µS/cm	0.05 mg/L	-257.0 mV	6.16 ft	150.00 ml/min
12/12/2019 11:14 AM	33:00	6.64 pH	51.85 °F	27,752 µS/cm	0.05 mg/L	-264.1 mV	6.16 ft	150.00 ml/min

12/12/2019 11:17 AM	36:00	6.65 pH	51.81 °F	27,440 µS/cm	0.05 mg/L	-266.7 mV	6.16 ft	150.00 ml/min
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Samples

Sample ID:	Description:
MW-530	Sample Time: 1120 Final DTW: 6.80 ft btoc Final RDO: 0.05 mg/L Ferrous Iron: 0.0 mg/L

Low-Flow Test Report:

Test Date / Time: 12/12/2019 11:39:19 AM

Project: Edmonds Terminal 4Q19

Operator Name: KF

Location Name: MW-8R Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 3 ft Total Depth: 13 ft Initial Depth to Water: 7.86 ft	Pump Type: Geotech geopump Series 2 Tubing Type: Polyethylene 0.170 x1/4 Pump Intake From TOC: 11 ft Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 150 ml/min Final Draw Down: 0 ft	Instrument Used: Aqua TROLL 600 Vented Serial Number: 466472
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Test Notes:

RDO and ORP did not stabilize

Weather Conditions:

Rain

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
12/12/2019 11:39 AM	00:00	6.82 pH	54.85 °F	1,474.9 µS/cm	2.37 mg/L	6.4 mV	7.86 ft	150.00 ml/min
12/12/2019 11:42 AM	03:00	6.76 pH	54.80 °F	1,457.2 µS/cm	0.55 mg/L	8.4 mV	7.86 ft	150.00 ml/min
12/12/2019 11:45 AM	06:00	6.76 pH	54.87 °F	1,457.4 µS/cm	0.46 mg/L	6.0 mV	7.86 ft	150.00 ml/min
12/12/2019 11:48 AM	09:00	6.76 pH	55.04 °F	1,457.8 µS/cm	0.85 mg/L	3.1 mV	7.86 ft	150.00 ml/min
12/12/2019 11:51 AM	12:00	6.76 pH	54.21 °F	1,457.7 µS/cm	0.59 mg/L	0.0 mV	7.86 ft	150.00 ml/min
12/12/2019 11:54 AM	15:00	6.74 pH	54.78 °F	1,457.6 µS/cm	0.33 mg/L	-3.0 mV	7.86 ft	150.00 ml/min
12/12/2019 11:57 AM	18:00	6.74 pH	54.80 °F	1,446.0 µS/cm	0.51 mg/L	-5.7 mV	7.86 ft	150.00 ml/min
12/12/2019 12:00 PM	21:00	6.75 pH	54.76 °F	1,447.8 µS/cm	0.55 mg/L	-7.7 mV	7.86 ft	150.00 ml/min
12/12/2019 12:03 PM	24:00	6.75 pH	54.72 °F	1,447.0 µS/cm	0.56 mg/L	-9.6 mV	7.86 ft	150.00 ml/min
12/12/2019 12:06 PM	27:00	6.75 pH	54.68 °F	1,450.9 µS/cm	0.46 mg/L	-11.4 mV	7.86 ft	150.00 ml/min
12/12/2019 12:09 PM	30:00	6.75 pH	54.59 °F	1,437.2 µS/cm	0.76 mg/L	-12.9 mV	7.86 ft	150.00 ml/min
12/12/2019 12:12 PM	33:00	6.75 pH	54.69 °F	1,443.9 µS/cm	0.50 mg/L	-14.0 mV	7.86 ft	150.00 ml/min

12/12/2019 12:15 PM	36:00	6.75 pH	54.77 °F	1,443.4 µS/cm	0.66 mg/L	-15.0 mV	7.86 ft	150.00 ml/min
12/12/2019 12:18 PM	39:00	6.75 pH	54.77 °F	1,433.9 µS/cm	0.77 mg/L	-15.9 mV	7.86 ft	150.00 ml/min
12/12/2019 12:21 PM	42:00	6.75 pH	54.73 °F	1,441.7 µS/cm	0.73 mg/L	-17.0 mV	7.86 ft	150.00 ml/min
12/12/2019 12:24 PM	45:00	6.75 pH	54.69 °F	1,444.0 µS/cm	0.64 mg/L	-17.8 mV	7.86 ft	150.00 ml/min

Samples

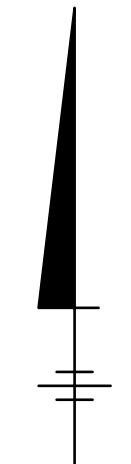
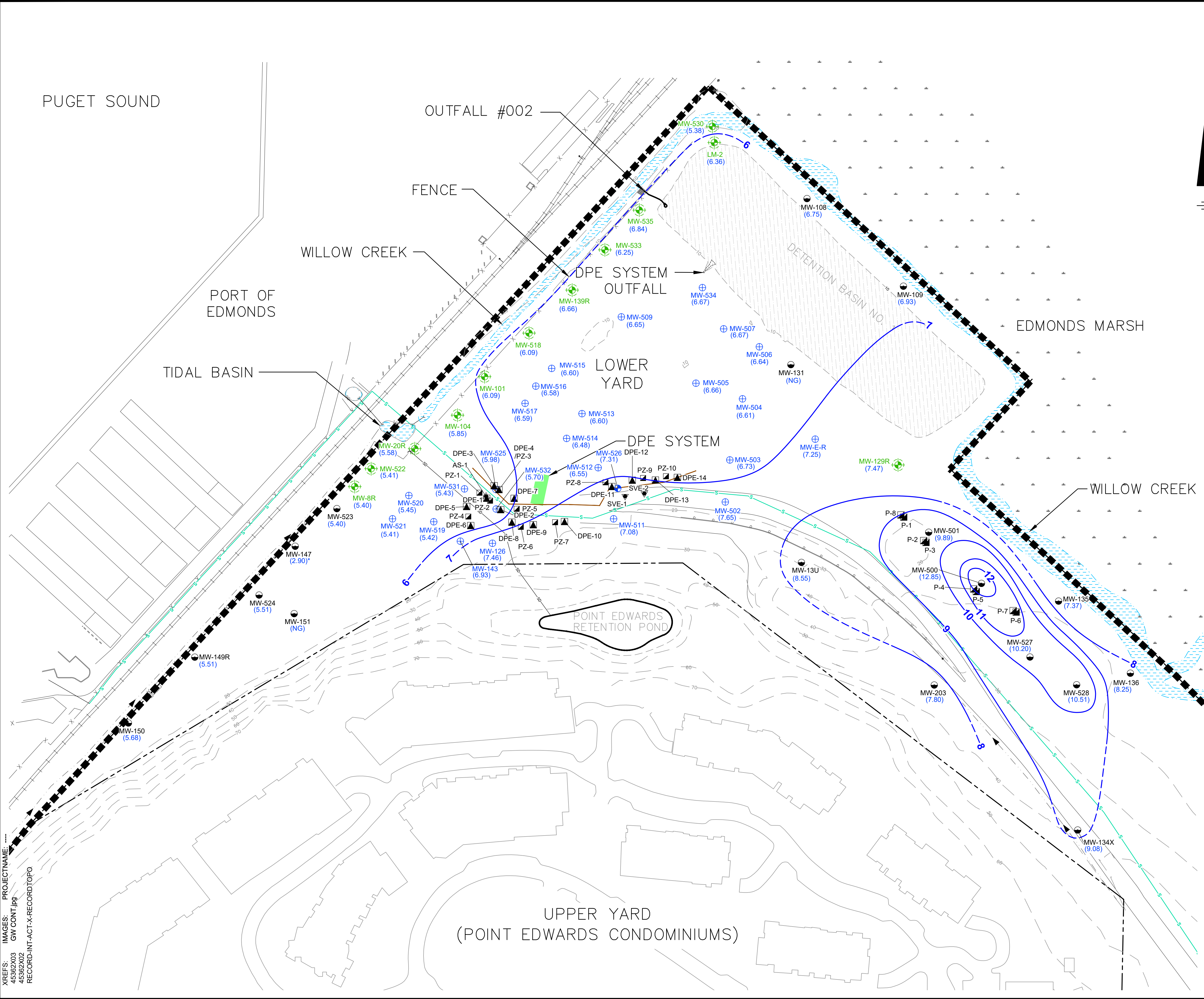
Sample ID:	Description:
MW-8R	Sample Time: 1253 Final DTW: 7.86 Ferrous Iron: 0.0 mg/L Final RDO: 0.64 mg/L

APPENDIX C

Groundwater Sampling Event Figures

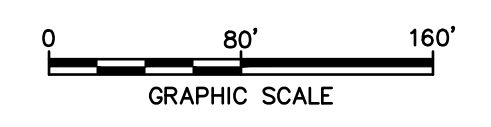


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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - MW-13 ● MONITORING WELL LOCATION
 - PZ-1 ▣ PIEZOMETER LOCATION
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-10 ▴ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ▾ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (12.85) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - (NG) NOT GAUGED
 - * VALUE IS AN ANOMALY AND NOT USED IN CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98)
 VERTICAL DATUM: N.A.V.D. 88
 UNITS: U.S. SURVEY FEET
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.



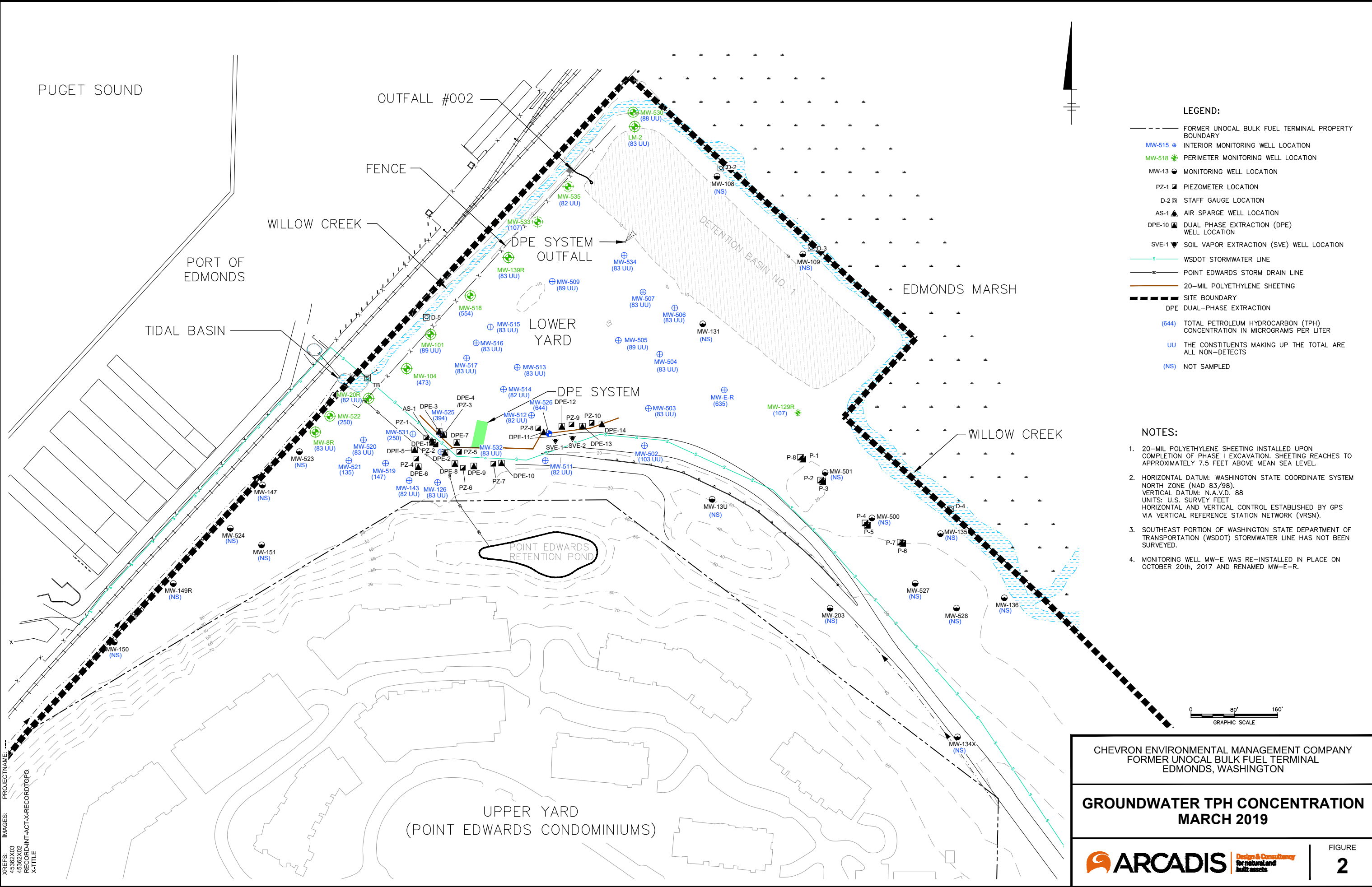
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS
 AND CONTOURS
 MARCH 18, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

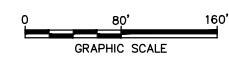
FIGURE
1

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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ◉ INTERIOR MONITORING WELL LOCATION
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 - MW-13 ◉ MONITORING WELL LOCATION
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 - D-2 ◉ STAFF GAUGE LOCATION
 - AS-1 ◉ AIR SPARGE WELL LOCATION
 - DPE-10 ◉ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ◉ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (644) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
 - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
 - (NS) NOT SAMPLED

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

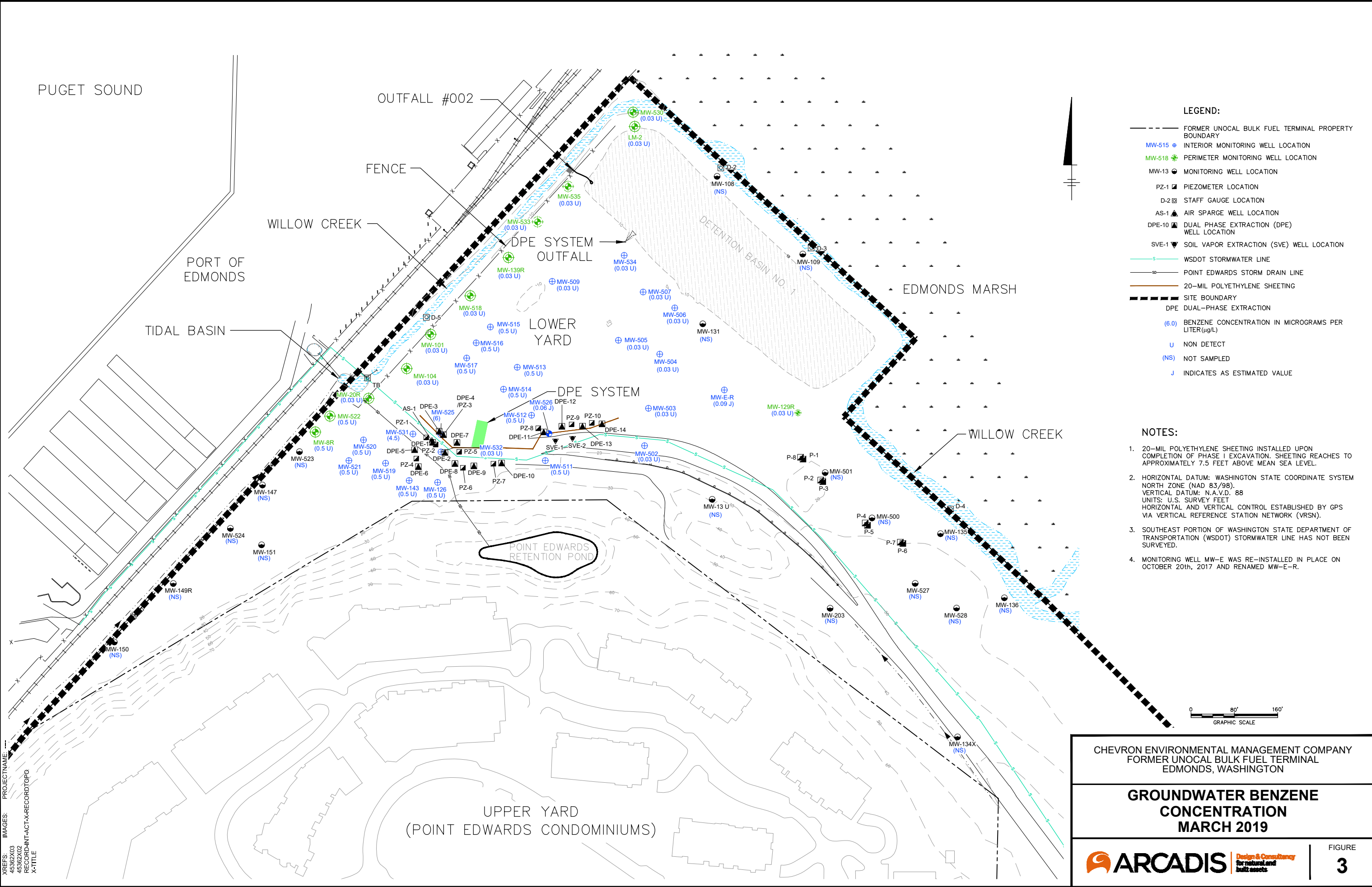
**GROUNDWATER TPH CONCENTRATION
 MARCH 2019**

ARCADIS Design & Consultancy
 for natural and built assets

FIGURE
2

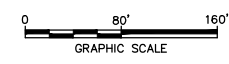
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- LEGEND:**
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 - AS-1 ⊕ AIR SPARGE WELL LOCATION
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 - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (6.0) BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
 - U NON DETECT
 - (NS) NOT SAMPLED
 - J INDICATES AS ESTIMATED VALUE

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
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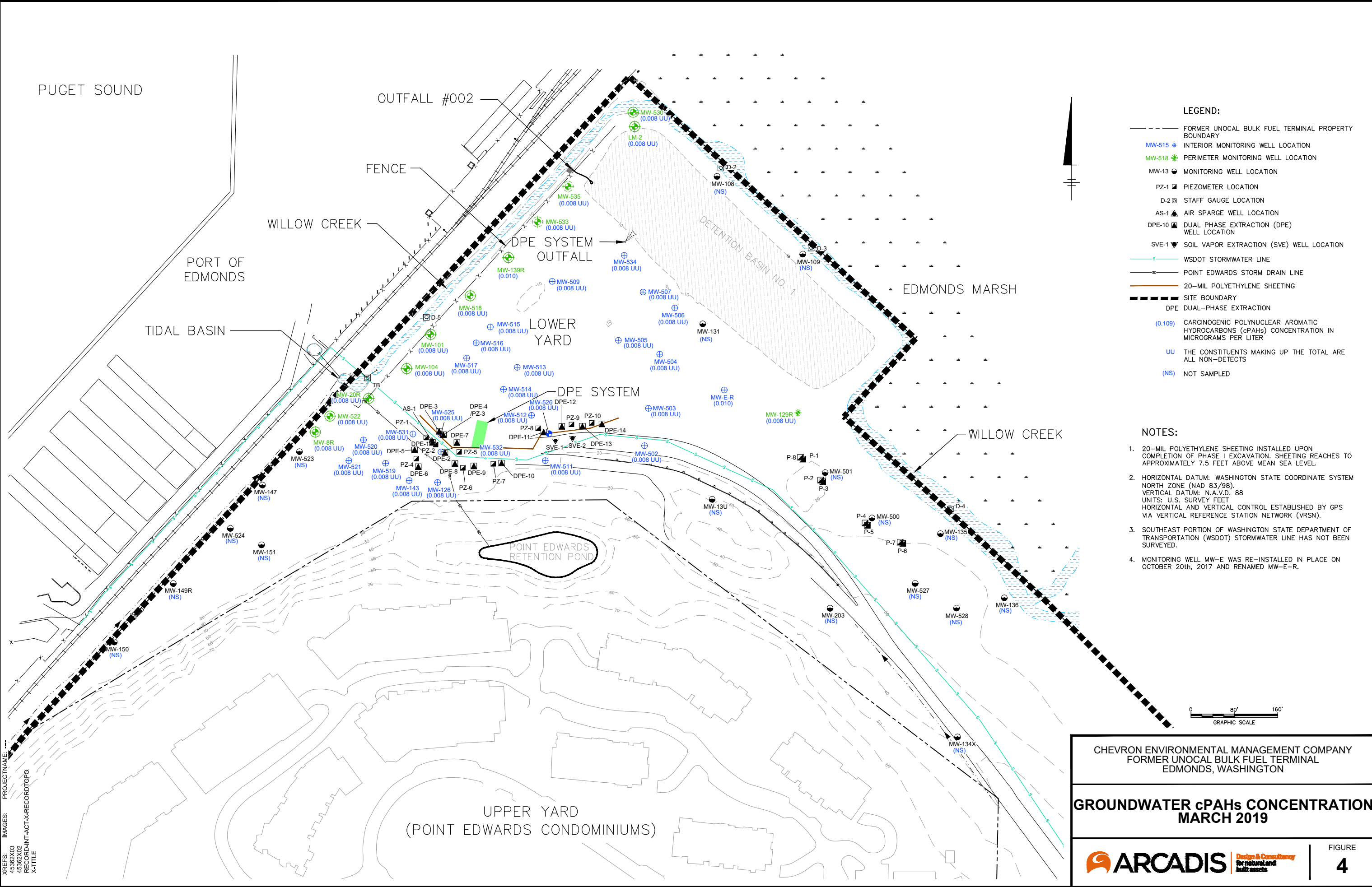
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER BENZENE
 CONCENTRATION
 MARCH 2019**

ARCADIS Design & Consultancy
 for natural and built assets

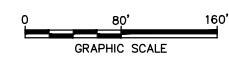
FIGURE
3

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 X-TITLE



- LEGEND:**
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 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - MW-13 ⊕ MONITORING WELL LOCATION
 - PZ-1 ⊕ PIEZOMETER LOCATION
 - D-2 ⊕ STAFF GAUGE LOCATION
 - AS-1 ⊕ AIR SPARGE WELL LOCATION
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 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (0.109) CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS (cPAHs) CONCENTRATION IN MICROGRAMS PER LITER
 - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
 - (NS) NOT SAMPLED

- NOTES:**
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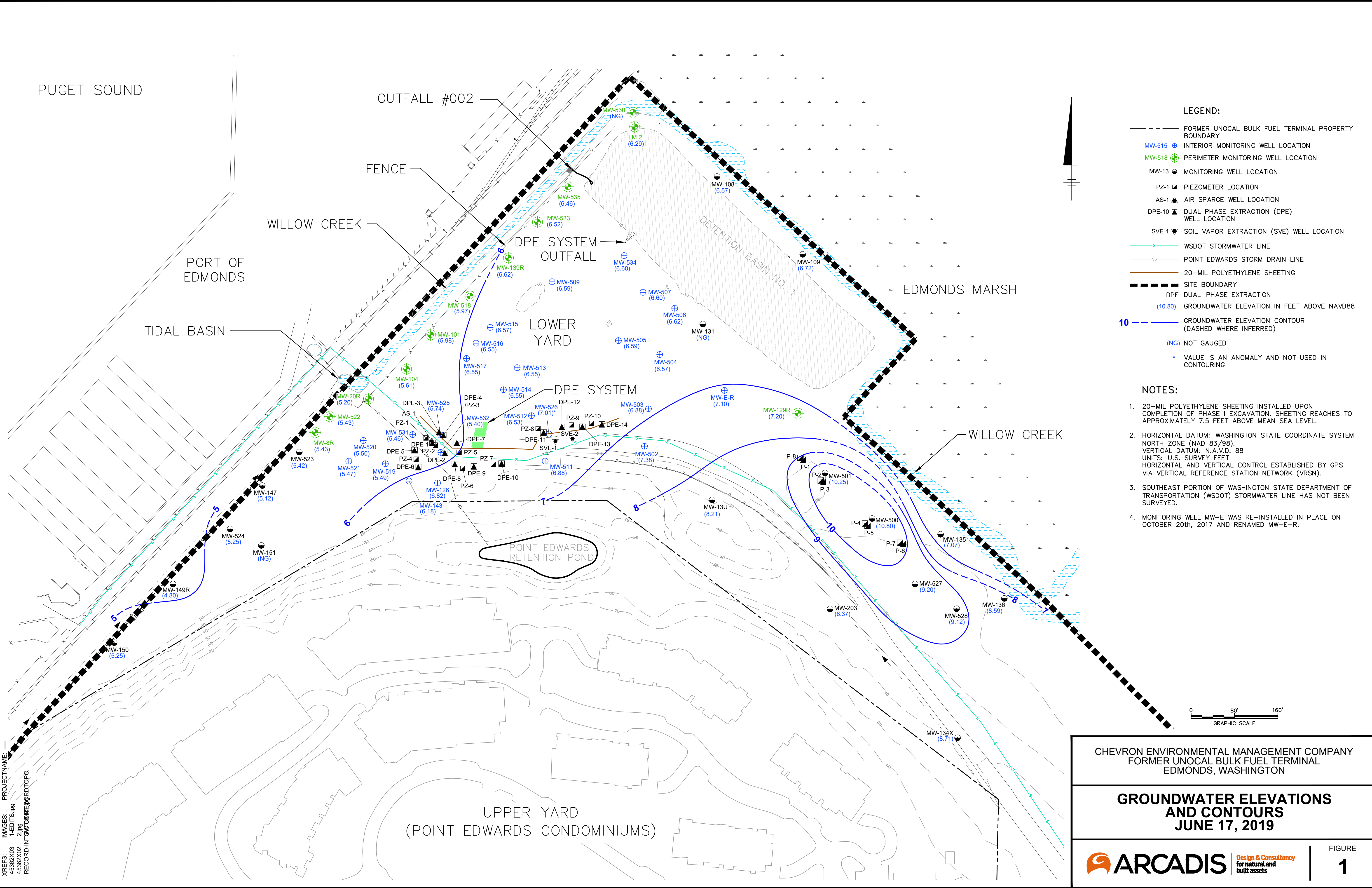
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION
 MARCH 2019**

ARCADIS Design & Consultancy
 for natural and built assets

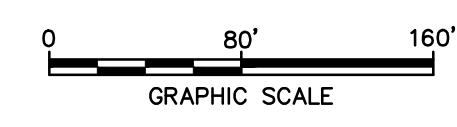
FIGURE
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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
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 - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
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 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE
 - (10.80) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 10 --- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - (NG) NOT GAUGED
 - * VALUE IS AN ANOMALY AND NOT USED IN CONTOURING

- NOTES:**
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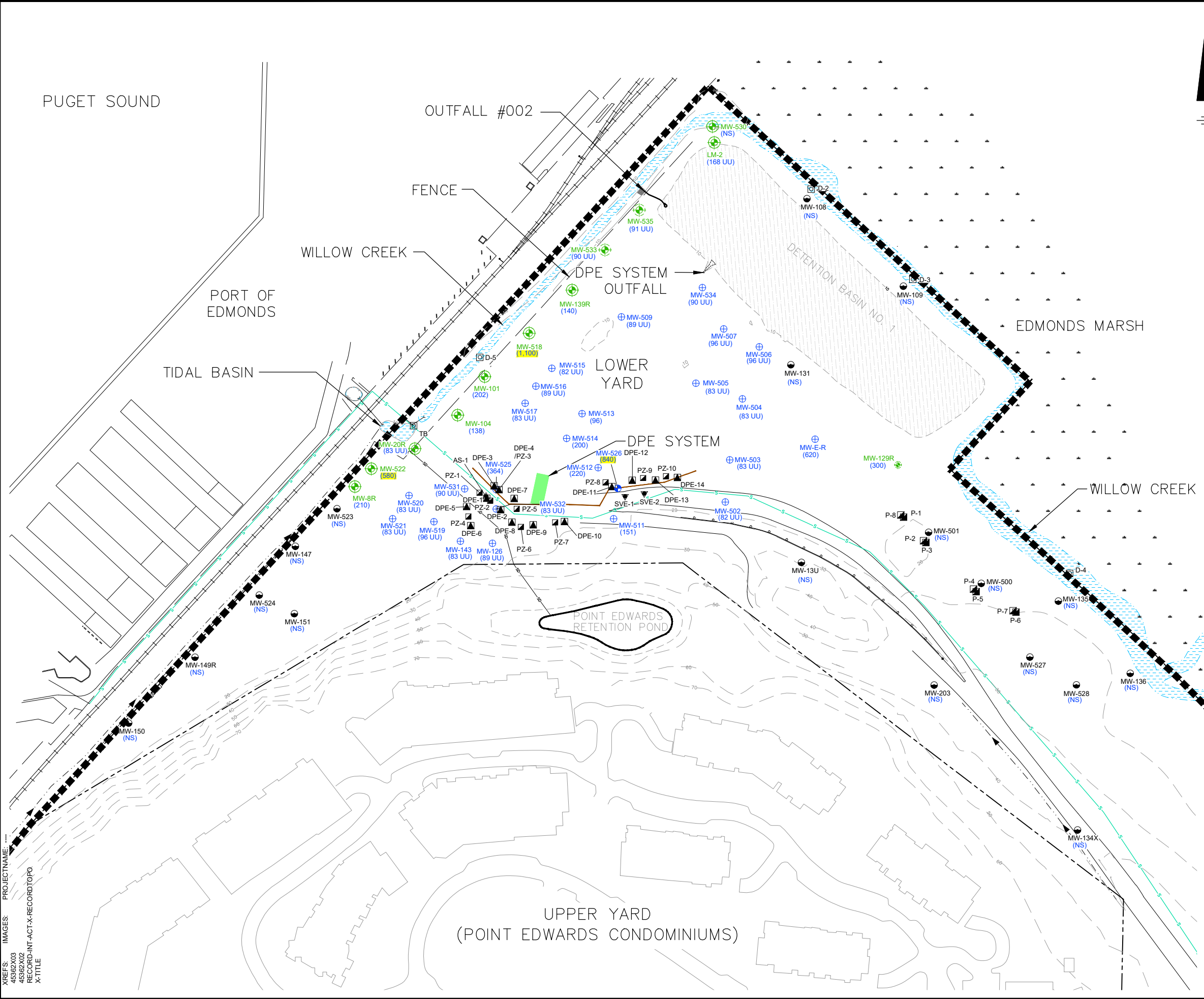
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS
 AND CONTOURS
 JUNE 17, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

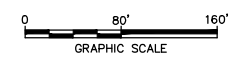
FIGURE
1

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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ◉ INTERIOR MONITORING WELL LOCATION
 - MW-518 ◉ PERIMETER MONITORING WELL LOCATION
 - MW-13 ◉ MONITORING WELL LOCATION
 - PZ-1 ◉ PIEZOMETER LOCATION
 - D-2 ◉ STAFF GAUGE LOCATION
 - AS-1 ◉ AIR SPARGE WELL LOCATION
 - DPE-10 ◉ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ◉ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (1,100) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
 - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
 - (NS) NOT SAMPLED
 - (1,100) HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL

- NOTES:**
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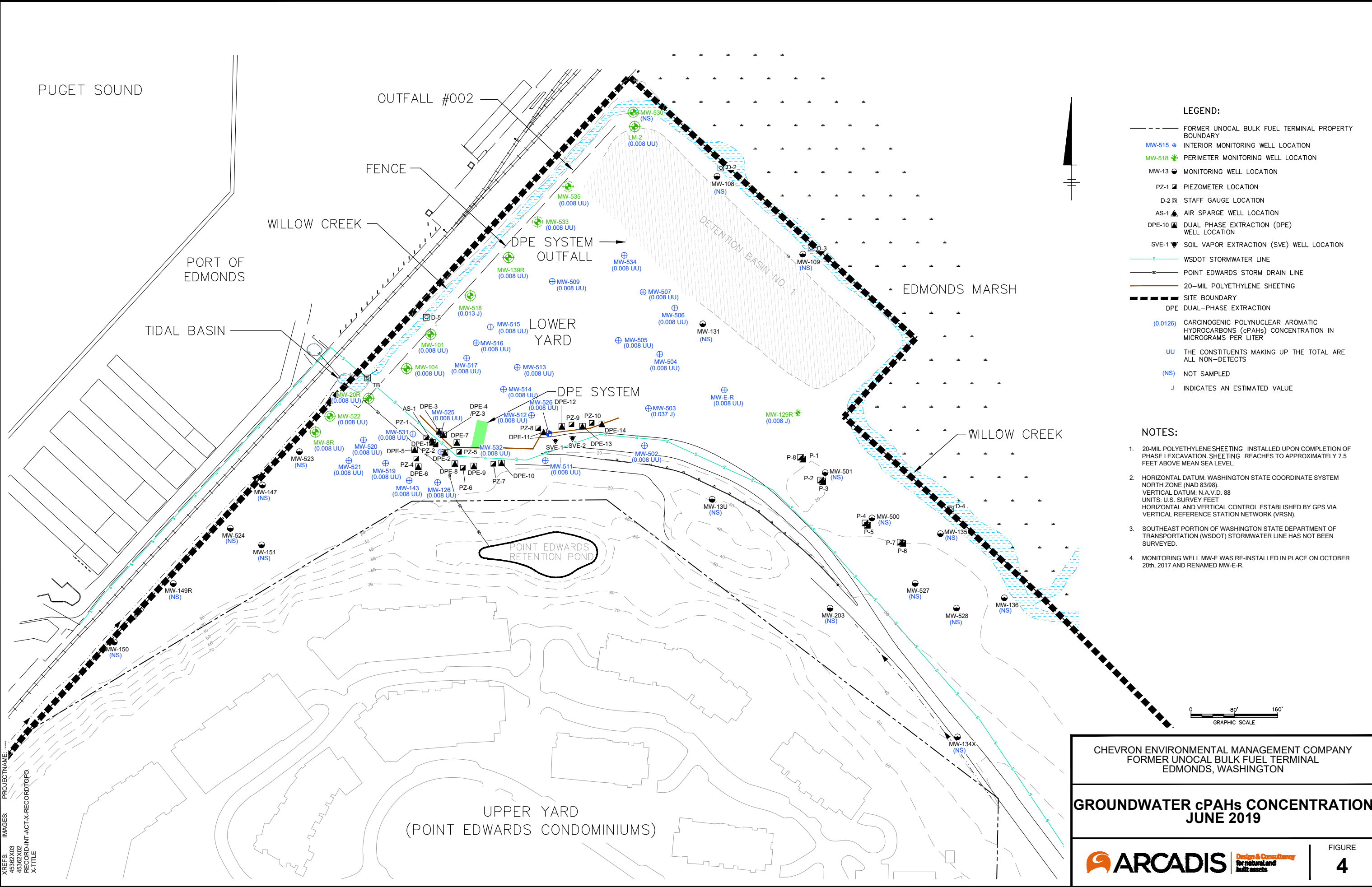
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION
 JUNE 2019**

ARCADIS Design & Consultancy
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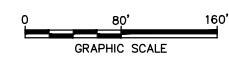
FIGURE
2

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 45362X02
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- LEGEND:**
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 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
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 - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
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 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (0.0126) CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS (cPAHs) CONCENTRATION IN MICROGRAMS PER LITER
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 - J INDICATES AN ESTIMATED VALUE

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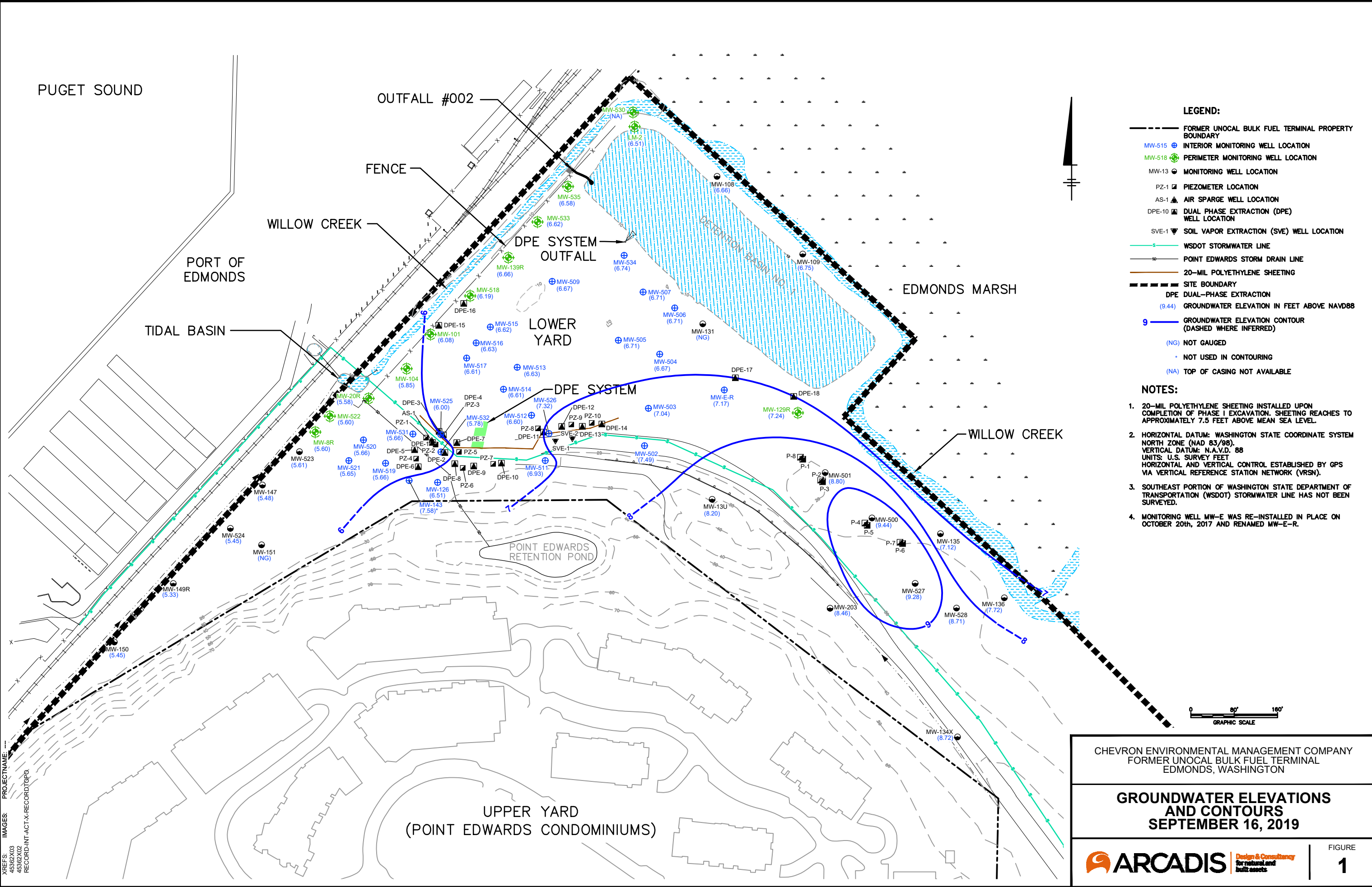
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION
 JUNE 2019**

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FIGURE
4

CITY: MINNEAPOLIS, MN DIV: GROUP: ENV/CAD DB: R. OBERLANDER LD: R. OBERLANDER PIC: (Cpt) PM: (R) PM: (R) LYN: (C) LYN: (C) OFF: (REF)
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 XREFS: IMAGES: PROJECTNAME: RECORD-INT-ACT-X-RECORD\TOPO



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 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (9.44) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 9 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - (NG) NOT GAUGED
 - NOT USED IN CONTOURING
 - (NA) TOP OF CASING NOT AVAILABLE

- NOTES:**
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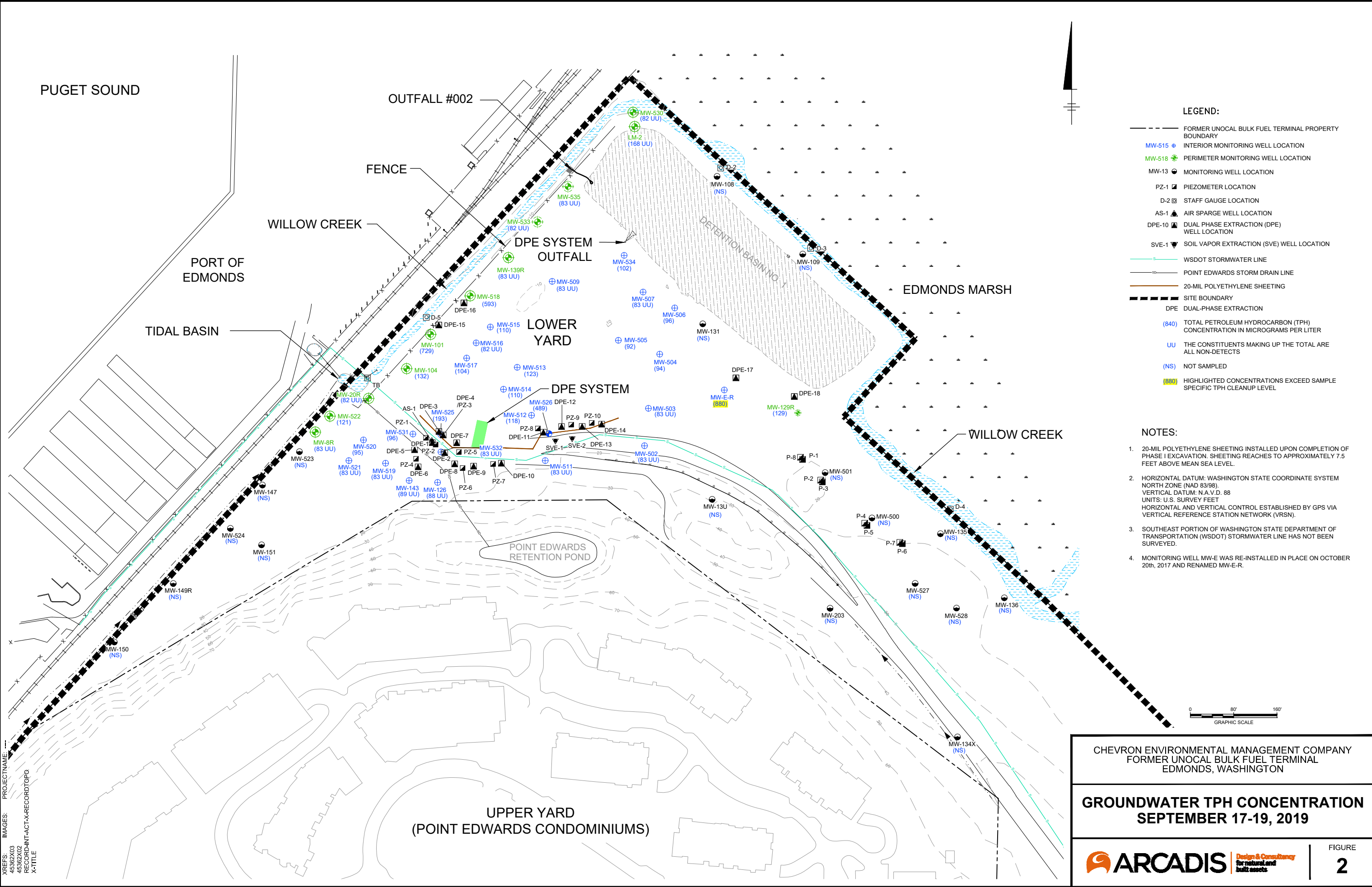
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS
 AND CONTOURS
 SEPTEMBER 16, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

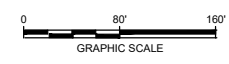
FIGURE
1

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 IMAGES: 45362X03
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 X-TITLE



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ◉ INTERIOR MONITORING WELL LOCATION
 - MW-518 ◉ PERIMETER MONITORING WELL LOCATION
 - MW-13 ◉ MONITORING WELL LOCATION
 - PZ-1 ◉ PIEZOMETER LOCATION
 - D-2 ◉ STAFF GAUGE LOCATION
 - AS-1 ◉ AIR SPARGE WELL LOCATION
 - DPE-10 ◉ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ◉ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (840) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
 - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
 - (NS) NOT SAMPLED
 - (880) HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
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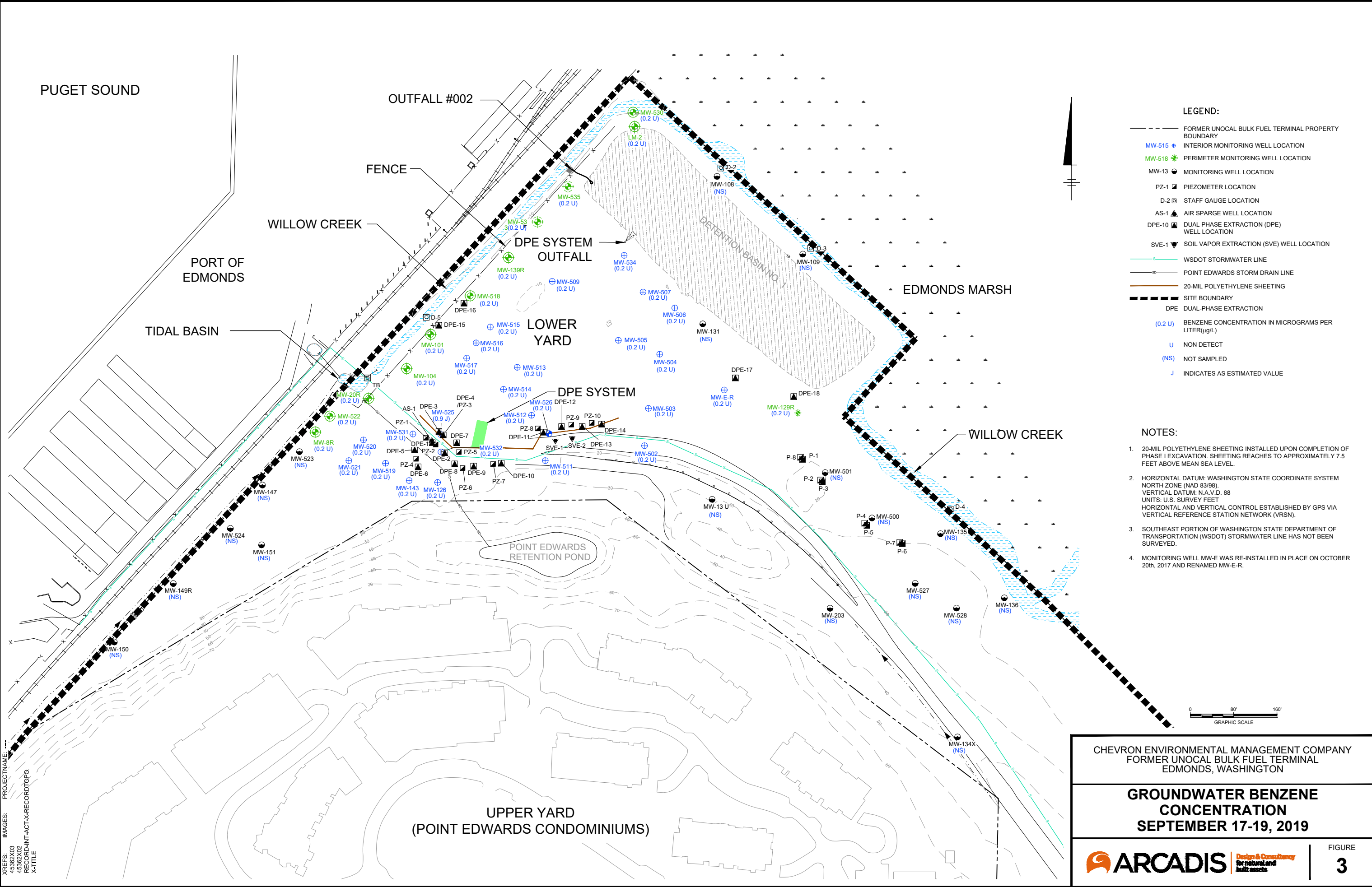
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION
 SEPTEMBER 17-19, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

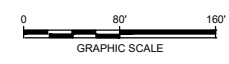
FIGURE
2

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 X-TITLE



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 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - DPE DUAL-PHASE EXTRACTION
 - (0.2 U) BENZENE CONCENTRATION IN MICROGRAMS PER LITER(µg/L)
 - U NON DETECT
 - (NS) NOT SAMPLED
 - J INDICATES AS ESTIMATED VALUE

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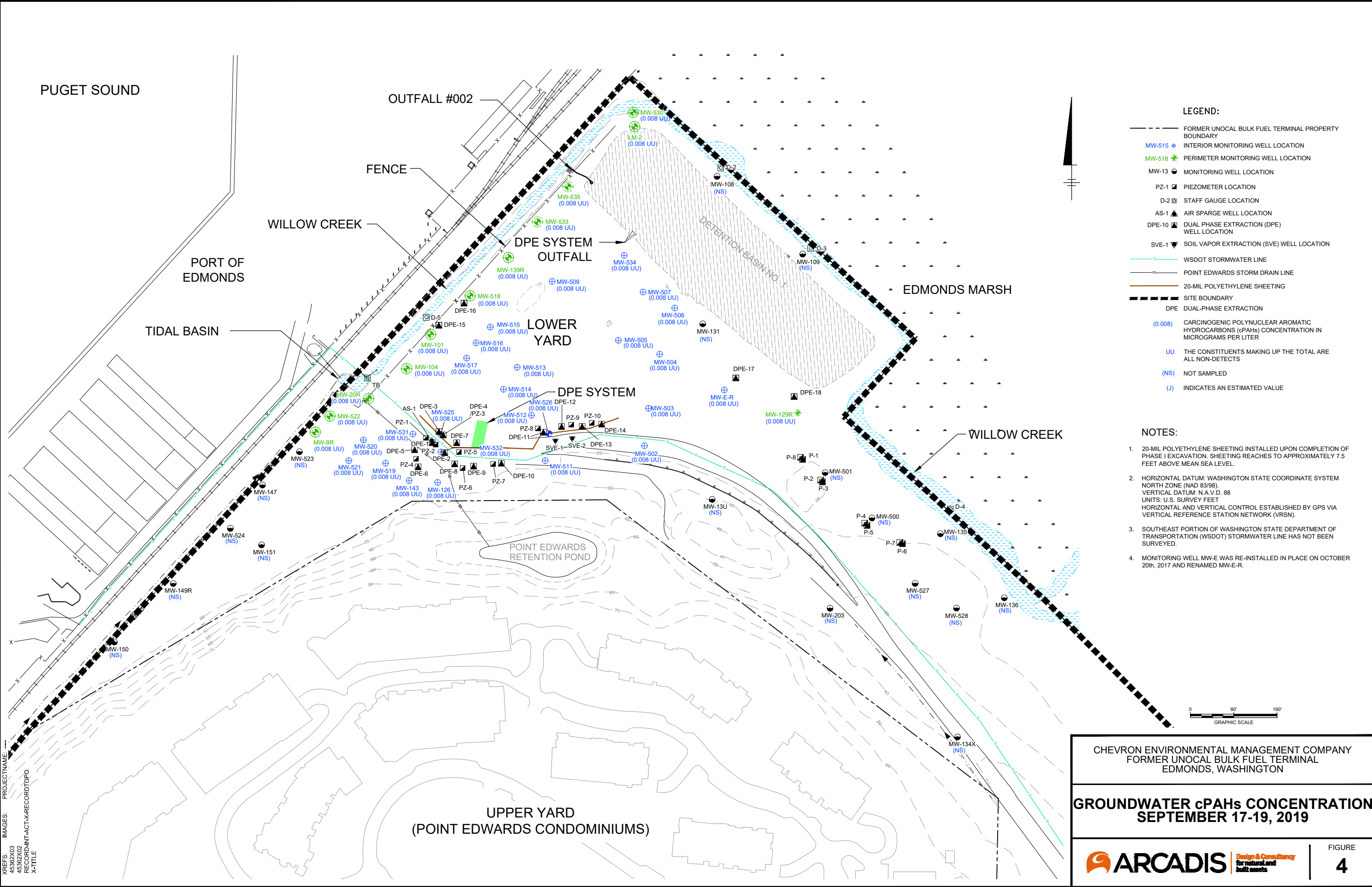
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

GROUNDWATER BENZENE
 CONCENTRATION
 SEPTEMBER 17-19, 2019

Design & Consultancy
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 built assets

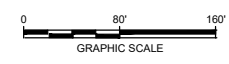
FIGURE
3

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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
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 - SITE BOUNDARY
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 - (0.008) CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS (cPAHs) CONCENTRATION IN MICROGRAMS PER LITER
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 - (NS) NOT SAMPLED
 - (J) INDICATES AN ESTIMATED VALUE

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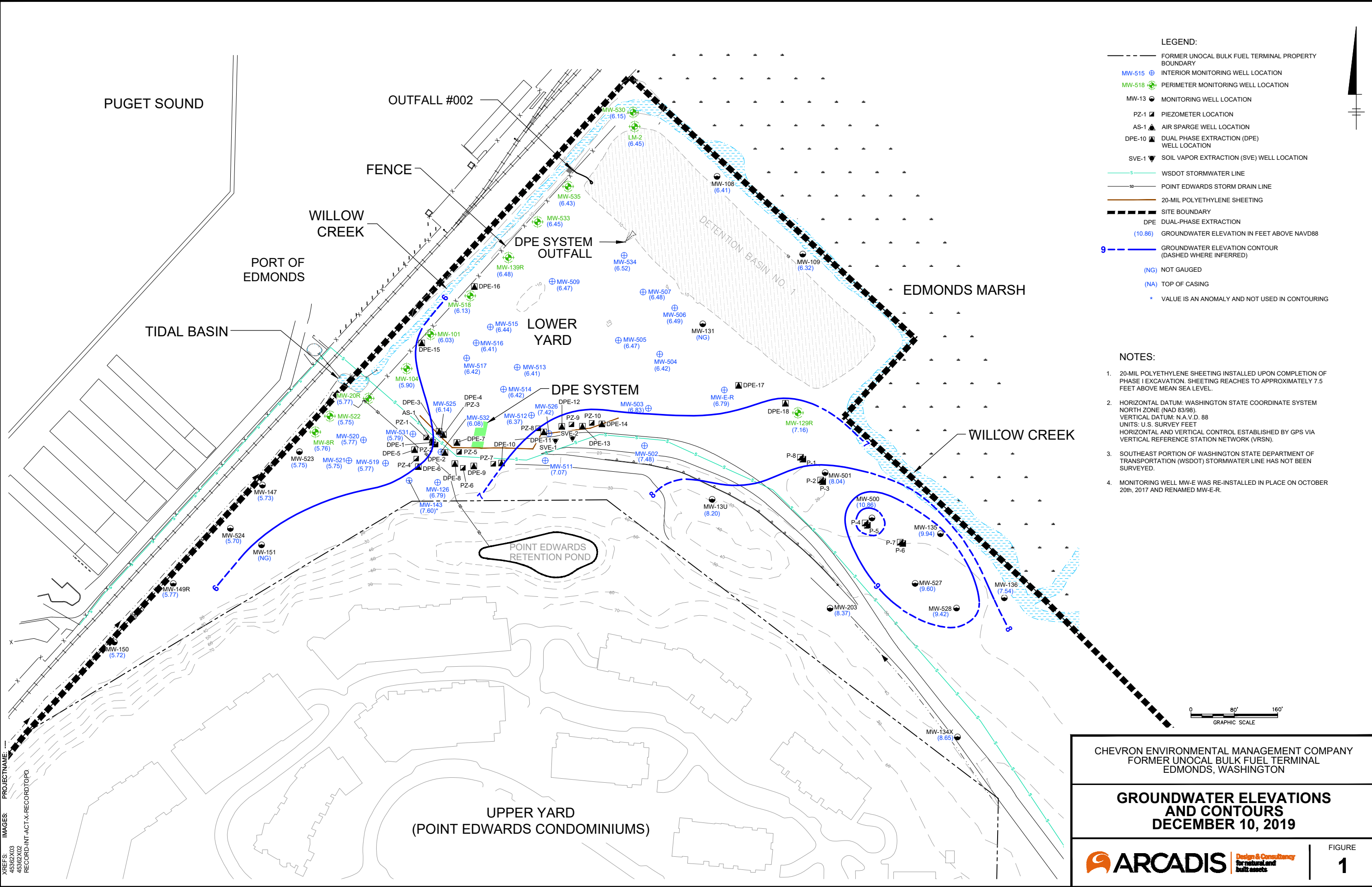
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER UNOCAL BULK FUEL TERMINAL
EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION
SEPTEMBER 17-19, 2019**

ARCADIS Design & Consultancy
for natural and built assets

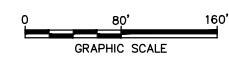
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- LEGEND:**
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 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - SITE BOUNDARY
 - ▲ DPE
 - (10.86) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 9 --- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
 - (NG) NOT GAUGED
 - (NA) TOP OF CASING
 - * VALUE IS AN ANOMALY AND NOT USED IN CONTOURING

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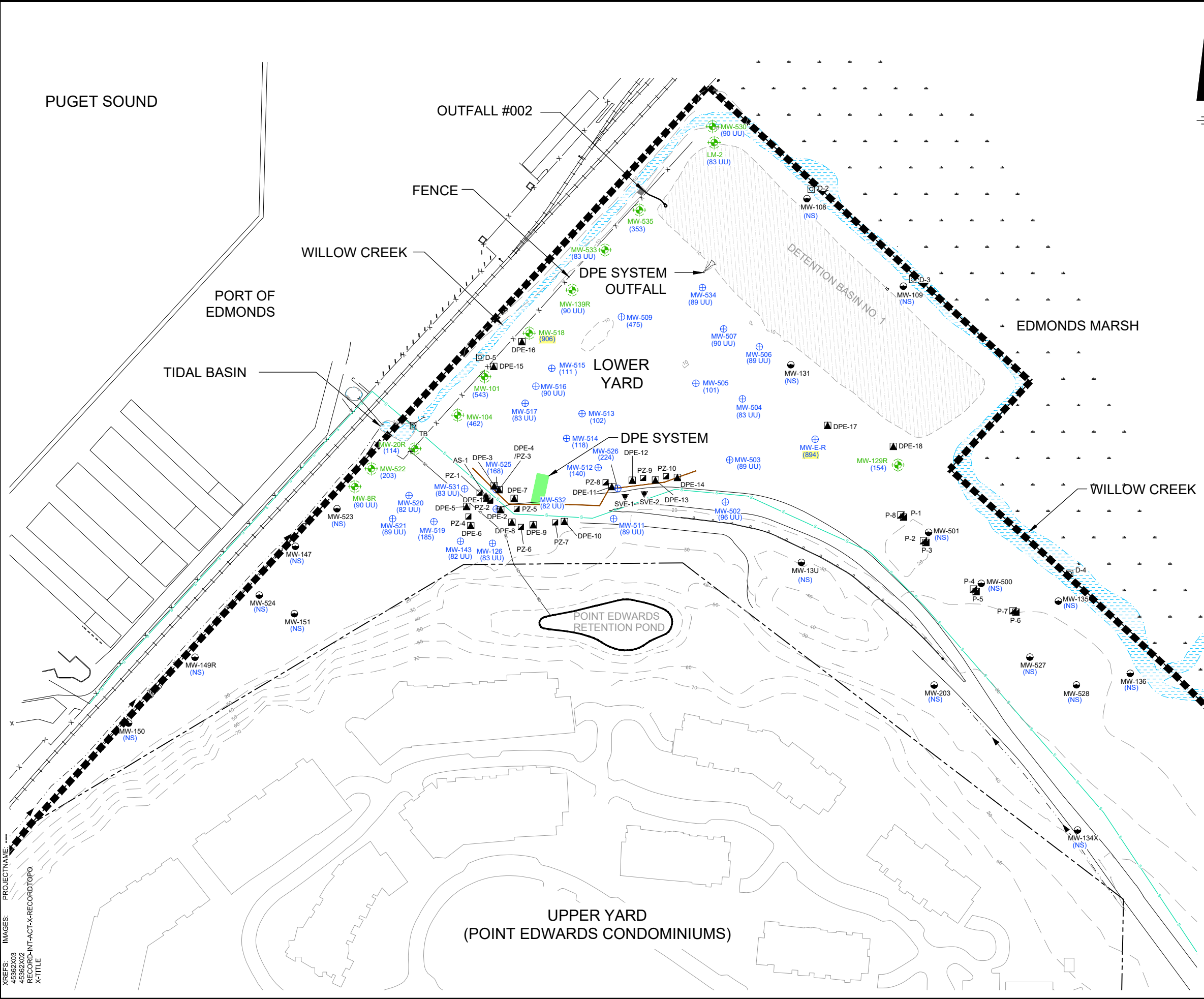
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS
 AND CONTOURS
 DECEMBER 10, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

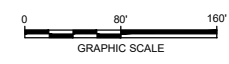
FIGURE
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 BY: ANJANEYAKUMAR, PAVAN KUMAR
 XREFS: PROJECTNAME
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 4592602
 RECORD-INT-ACT-X-RECORD\TOPO
 X-TITLE



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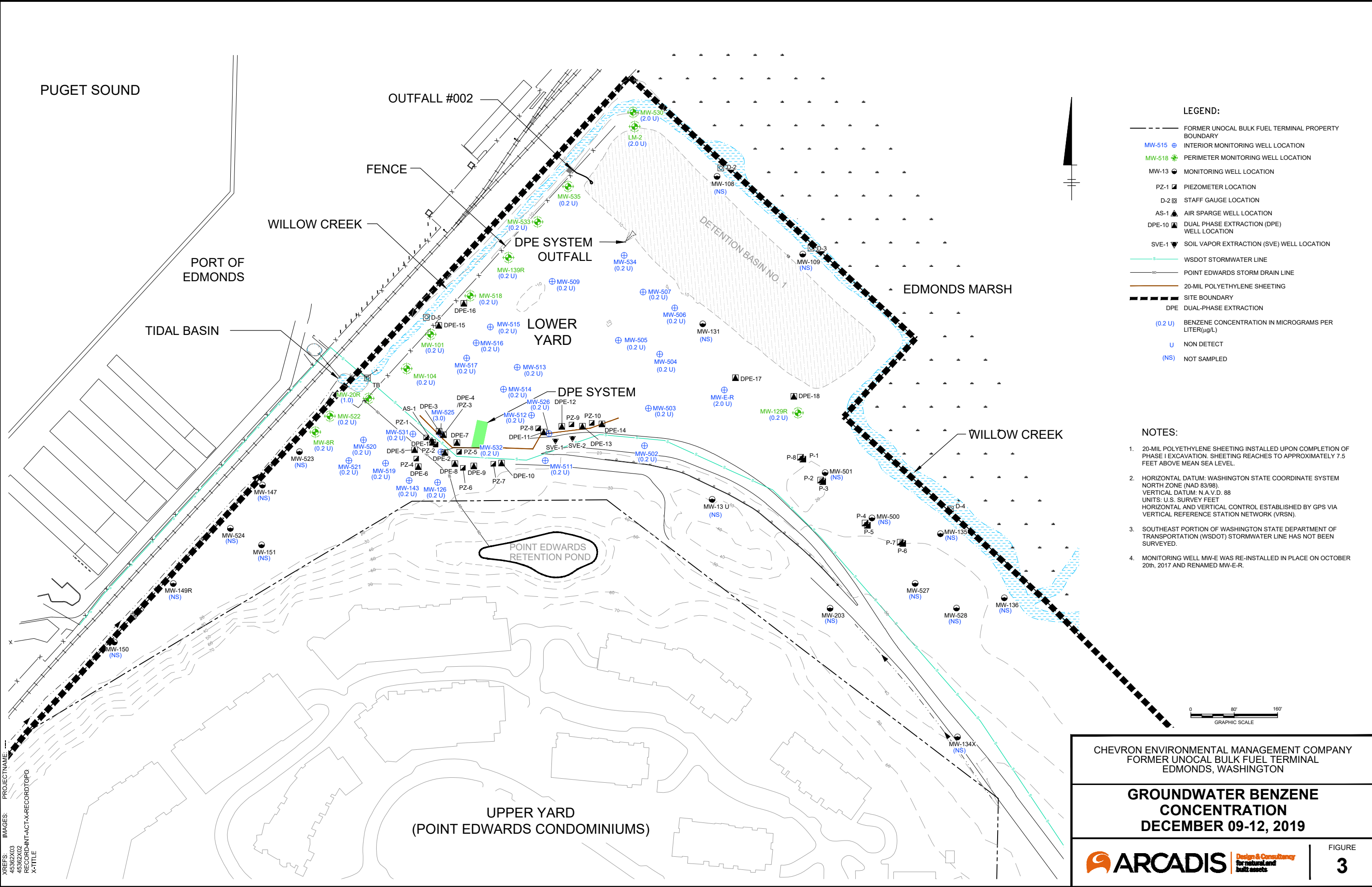
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION
 DECEMBER 09-12, 2019**

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 for natural and built assets

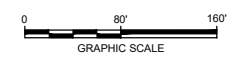
FIGURE
2

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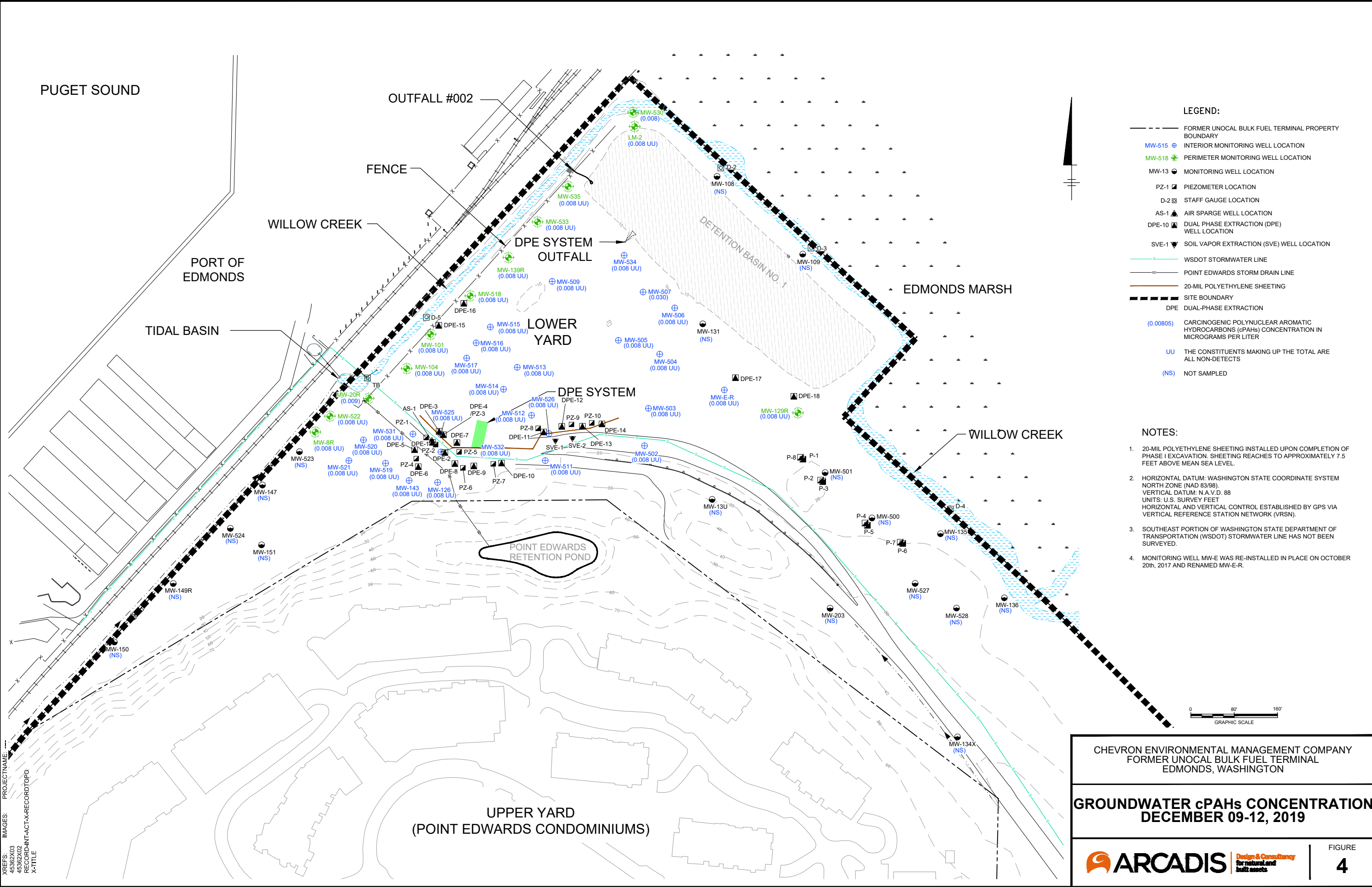
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 DECEMBER 09-12, 2019**

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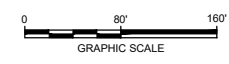
FIGURE
3

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 45362X02
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 X-TITLE



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 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION
 DECEMBER 09-12, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

FIGURE
4

APPENDIX D

Groundwater Monitoring Laboratory Analytical Reports and Chain of Custody Documentation





ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: February 18, 2019 17:34


Project: Edmonds Terminal

Account #: 11964
Group Number: 2028569
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To Arcadis
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Scott Zorn
Attn: Sam Miles
Attn: Jason Little
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Eric Krueger

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-101-W-190207 Grab Groundwater	02/07/2019 11:50	9982783
MW-129R-W-190207 Grab Groundwater	02/07/2019 10:00	9982784
MW-129R-W-190207 MS Grab Groundwater	02/07/2019 10:00	9982785
MW-129R-W-190207 MSD Grab Groundwater	02/07/2019 10:00	9982786
MW-518-W-190207 Grab Groundwater	02/07/2019 11:45	9982787
MW-526-W-190207 Grab Groundwater	02/07/2019 11:00	9982788
MW-E-R-W-190207 Grab Groundwater	02/07/2019 09:50	9982789
DUP-1-WD-190207 Grab Groundwater	02/07/2019	9982790
QA-T-190207 NA Water	02/07/2019	9982791

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-101-W-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982783
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 11:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 11:46	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/11/2019 21:06	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/11/2019 21:06	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/11/2019 21:05	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 12:15	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982784
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	33 J	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	46 J	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 12:13	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/11/2019 21:32	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/11/2019 21:32	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/11/2019 21:31	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 12:38	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190207 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982785
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.9	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	18	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	230	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 12:39	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/11/2019 22:48	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/11/2019 21:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/11/2019 21:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19042A94A	02/11/2019 22:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 13:01	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190207 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982786
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	1	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	18	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	300	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 13:06	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/11/2019 23:14	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/11/2019 22:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/11/2019 22:21	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19042A94A	02/11/2019 23:13	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 13:24	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982787
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 11:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.						
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	340	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 13:33	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/12/2019 00:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/12/2019 00:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/12/2019 00:30	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 13:48	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-W-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982788
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 11:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	360	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	0.06 J	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	100	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 13:59	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/12/2019 00:56	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/12/2019 00:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/12/2019 00:55	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 14:11	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-E-R-W-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982789
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019 09:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	350	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	0.2 J	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	450	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 14:26	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/12/2019 01:22	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/12/2019 01:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/12/2019 01:21	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 14:34	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-190207 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982790
ELLE Group #: 2028569
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	380	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	0.2 J	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	300	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19039WAS026	02/16/2019 14:53	Edward C Monborne	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19039WAS026	02/11/2019 08:30	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/12/2019 01:48	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/12/2019 01:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/12/2019 01:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190440026A	02/17/2019 14:57	Heather E Williams	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190440026A	02/14/2019 08:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190207 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 9982791
ELLE Group #: 2028569
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 02/08/2019 10:10
Collection Date/Time: 02/07/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
	SW-846 8021B		ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19042A94A	02/11/2019 20:41	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19042A94A	02/11/2019 20:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19042A94A	02/11/2019 20:40	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 02/18/2019 17:34

Group Number: 2028569

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 19039WAS026	Sample number(s): 9982783-9982790		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	0.01 J	0.01	0.05
Batch number: 19042A94A	Sample number(s): 9982783-9982791		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 190440026A	Sample number(s): 9982783-9982790		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19039WAS026	Sample number(s): 9982783-9982790								
Benzo(a)anthracene	1.00	0.995			100		59-143		
Benzo(a)pyrene	1.00	1.03			103		63-145		
Benzo(b)fluoranthene	1.00	1.06			106		63-152		
Benzo(k)fluoranthene	1.00	0.970			97		62-143		
Chrysene	1.00	0.904			90		59-135		
Dibenz(a,h)anthracene	1.00	1.16			116		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.18			118		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19042A94A	Sample number(s): 9982783-9982791								
Benzene	20	18.42			92		80-120		
NWTPH-Gx water C7-C12	1100	1366.29			124		64-131		
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 02/18/2019 17:34

Group Number: 2028569

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 190440026A DX DRO C12-C24 w/ SiGel	Sample number(s): 9982783-9982790								
	600.14	213.79			36		10-115		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19039WAS026	Sample number(s): 9982783-9982790 UNSPK: 9982784									
Benzo(a)anthracene	N.D.	1.02	1.06	1.01	1.02	104	101	59-143	4	30
Benzo(a)pyrene	N.D.	1.02	0.946	1.01	0.992	93	98	63-145	5	30
Benzo(b)fluoranthene	N.D.	1.02	0.995	1.01	1.08	98	107	63-152	8	30
Benzo(k)fluoranthene	N.D.	1.02	0.914	1.01	0.975	90	96	62-143	7	30
Chrysene	N.D.	1.02	0.914	1.01	0.897	90	89	59-135	2	30
Dibenz(a,h)anthracene	N.D.	1.02	1.22	1.01	0.869	120	86	56-145	34*	30
Indeno(1,2,3-cd)pyrene	N.D.	1.02	1.31	1.01	0.938	129	93	56-151	33*	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19042A94A	Sample number(s): 9982783-9982791 UNSPK: 9982784									
Benzene	N.D.	20	18.36	20	18.33	92	92	80-120	0	30
NWTPH-Gx water C7-C12	33.31	1100	1502	1100	1539.45	134*	137*	64-131	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 190440026A	Sample number(s): 9982783-9982790 UNSPK: 9982784									
DX DRO C12-C24 w/ SiGel	45.63	604.98	231.79	619.98	296.89	31	41	30-115	25*	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19039WAS026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9982783	92	75	82
9982784	68	79	94
9982785	81	82	91

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 02/18/2019 17:34

Group Number: 2028569

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19039WAS026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
9982786	72	86	91
9982787	85	55	127*
9982788	103	61	112
9982789	68	83	101
9982790	86	88	103
Blank	82	75	74
LCS	98	91	89
MS	81	82	91
MSD	72	86	91
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master

Batch number: 19042A94A

	Trifluorotoluene-P	Trifluorotoluene-F
9982783	79	79
9982784	79	80
9982785	76	110
9982786	77	108
9982787	77	79
9982788	76	81
9982789	76	94
9982790	78	96
9982791	79	80
Blank	78	81
LCS	77	107
MS	76	110
MSD	77	108
Limits:	51-120	50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 190440026A

	Orthoterphenyl	Capric Acid
9982783	59	0
9982784	51	0
9982785	53	0
9982786	66	0
9982787	55	0
9982788	39*	0
9982789	73	0
9982790	75	0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 02/18/2019 17:34

Group Number: 2028569

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190440026A

	Orthoterphenyl	Capric Acid
Blank	54	0
LCS	57	0
MS	53	0
MSD	66	0
Limits:	50-150	0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only
Group # 2038564 Sample # 1482783-91
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks					
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENJPMGDD1430302</u>		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	Total Number of Containers BTEX+MTBE <input checked="" type="checkbox"/> 80218 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method EPAHS by USEPA 8270 SIM	SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits										* use standard Silica Gel cleanup * 5 Day TAT on All samples							
Site Address <u>11720 unoco Rd, Edmonds, WA</u>		Chevron PM <u>Kim Jolitz</u>				Lead Consultant <u>Arcadis</u>		Consultant/Office <u>1100 Olive way, suite 800, Seattle, WA 98101</u>		Consultant Project Mgr. <u>Samuel Miles</u>		Consultant Phone #		Sampler <u>Eric Krueger, Kelsey Franz</u>				3 Composite		Grab			
2 Sample Identification		Collected																					
Date	Time	Grab	Composite																				
<u>MW-101</u>	<u>2/7/19</u>	<u>1150</u>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-129R</u>		<u>1000</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>MW-129R MS/MSD</u>		<u>1000</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>MW-518</u>		<u>1145</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>MW-526</u>		<u>1100</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>MW-E-R</u>		<u>0950</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>DUP-1</u>		<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<u>Trip Blank</u>		<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by		Date		Time							
Standard <input checked="" type="radio"/> 5 day <input type="radio"/> 4 day				<u>[Signature]</u>				<u>2/7/19</u>		<u>1500</u>		<u>FedEx</u>		<u>2/7/19</u>		<u>1500</u>							
72 hour <input type="radio"/> 48 hour <input type="radio"/> 24 hour <input type="radio"/>				Relinquished by				Date		Time		Received by		Date		Time							
				<u>_____</u>				<u>_____</u>		<u>_____</u>		<u>_____</u>		<u>_____</u>		<u>_____</u>							
8 Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier:				Date		Time		Received by		Date		Time							
Type I - Full		CVX-RTBU-FL_05 (default)		UPS <input type="checkbox"/> FedEx <input checked="" type="checkbox"/> Other <input type="checkbox"/>				<u>2/8/19</u>		<u>1010</u>		<u>[Signature]</u>		<u>2/8/19</u>		<u>1010</u>							
Type VI (Raw Data)		Other: _____		Temperature Upon Receipt <u>0.6/1.3 °C</u>				Custody Seals Intact?		<input checked="" type="radio"/> Yes <input type="radio"/> No													



Client: Chevron c/o Arcadis

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 02/08/2019 10:10
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 12:38 on 02/08/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.6	DT	Wet	Y	Bagged	N
2	DT146	1.3	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: April 04, 2019 12:43


Project: Edmonds Terminal

Account #: 11964
Group Number: 2034617
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To Arcadis
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Scott Zorn
Attn: Sam Miles
Attn: Jason Little
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Eric Krueger

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
LM-2-W-190319 Grab Groundwater	03/19/2019 11:30	1013650
MW-104-W-190319 Grab Groundwater	03/19/2019 12:15	1013651
MW-129R-W-190319 Grab Groundwater	03/19/2019 12:50	1013652
MW-525-W-190319 Grab Groundwater	03/19/2019 09:05	1013653
MW-526-W-190319 Grab Groundwater	03/19/2019 13:10	1013654
MW-530-W-190319 Grab Groundwater	03/19/2019 11:10	1013655
MW-531-W-190319 Grab Groundwater	03/19/2019 09:45	1013656
MW-532-W-190319 Grab Groundwater	03/19/2019 09:15	1013657
MW-533-W-190319 Grab Groundwater	03/19/2019 10:05	1013658
MW-534-W-190319 Grab Groundwater	03/19/2019 11:15	1013659
MW-535-W-190319 Grab Groundwater	03/19/2019 10:00	1013660
MW-E-R-W-190319 Grab Groundwater	03/19/2019 12:30	1013661
DUP-1-WD-190319 Grab Groundwater	03/19/2019	1013662
QA-T-190319 NA Water	03/19/2019	1013663

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: LM-2-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013650
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 11:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1

The surrogate(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes are detected, the data is reported.

GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1

GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/25/2019 21:57	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/25/2019 22:37	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/25/2019 22:37	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/25/2019 22:36	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 08:22	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013651
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 12:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	400	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/25/2019 22:27	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/25/2019 23:03	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/25/2019 23:03	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/25/2019 23:02	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 08:46	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013652
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 12:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	34 J	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/25/2019 22:56	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/25/2019 23:28	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/25/2019 23:28	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/25/2019 23:27	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 09:09	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013653
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 09:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	320	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	6.0	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/25/2019 23:25	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/25/2019 23:54	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/25/2019 23:54	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/25/2019 23:53	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 10:18	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013654
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 13:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	530	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	0.06 J	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	64 J	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/25/2019 23:55	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 00:19	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 00:19	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 00:18	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 10:41	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-530-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013655
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 11:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/26/2019 00:24	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 00:45	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 00:45	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 00:44	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 11:04	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013656
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 09:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	4.5	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	190	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/26/2019 00:53	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 01:11	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 01:11	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 01:10	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 11:27	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013657
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 09:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/26/2019 01:23	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 01:36	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 01:36	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 01:35	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 11:50	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013658
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 10:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	47 J	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/26/2019 01:52	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 02:02	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 02:02	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 02:01	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 12:14	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013659
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 11:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

The reverse surrogate, capric acid, is present at <1%.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19081WAJ026	03/26/2019 02:21	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19081WAJ026	03/24/2019 10:30	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 03:18	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 03:18	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 03:17	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190850042A	04/02/2019 12:37	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190850042A	03/27/2019 10:30	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013660
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The response for a surrogate in the continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the surrogate recovery is within specification in the batch QC and sample, the data is reported.						
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19084WAG026	03/26/2019 23:21	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19084WAG026	03/25/2019 20:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 03:44	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 03:44	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 03:43	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/02/2019 23:01	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-E-R-W-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013661
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019 12:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.01 J	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.01 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	0.03 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.01 J	0.01	0.05	1
The response for a surrogate in the continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the surrogate recovery is within specification in the batch QC and sample, the data is reported.						
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	400	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	0.09 J	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	180	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19084WAG026	03/26/2019 23:50	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19084WAG026	03/25/2019 20:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 04:10	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 04:10	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 04:09	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/02/2019 23:24	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-190319 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013662
ELLE Group #: 2034617
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
The response for a surrogate in the continuing calibration verification standard is outside the QC acceptance limits. Since the response is high indicating increased sensitivity, and the surrogate recovery is within specification in the batch QC and sample, the data is reported.						
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.03 ug/l	1.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	250 ug/l	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19084WAG026	03/27/2019 00:19	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19084WAG026	03/25/2019 20:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 04:35	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 04:35	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/26/2019 04:34	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 00:33	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190319 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1013663
ELLE Group #: 2034617
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 03/20/2019 10:20
Collection Date/Time: 03/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1
GC Volatiles						
02102	Benzene	SW-846 8021B 71-43-2	ug/l N.D.	ug/l 0.03	ug/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/25/2019 22:12	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/25/2019 22:12	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19084A94A	03/25/2019 22:11	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/04/2019 12:43

Group Number: 2034617

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19081WAJ026	Sample number(s): 1013650-1013659		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19084WAG026	Sample number(s): 1013660-1013662		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19084A94A	Sample number(s): 1013650-1013663		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 190850042A	Sample number(s): 1013650-1013659		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 190870014A	Sample number(s): 1013660-1013662		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	530	100	250

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19081WAJ026	Sample number(s): 1013650-1013659								
Benzo(a)anthracene	1.00	1.06			106		59-143		
Benzo(a)pyrene	1.00	1.05			105		63-145		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/04/2019 12:43

Group Number: 2034617

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(b)fluoranthene	1.00	1.12			112		63-152		
Benzo(k)fluoranthene	1.00	1.04			104		62-143		
Chrysene	1.00	0.967			97		59-135		
Dibenz(a,h)anthracene	1.00	1.08			108		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.17			117		56-151		
Batch number: 19084WAG026	Sample number(s): 1013660-1013662								
Benzo(a)anthracene	1.00	1.03			103		59-143		
Benzo(a)pyrene	1.00	1.00			100		63-145		
Benzo(b)fluoranthene	1.00	1.02			102		63-152		
Benzo(k)fluoranthene	1.00	1.00			100		62-143		
Chrysene	1.00	0.976			98		59-135		
Dibenz(a,h)anthracene	1.00	0.941			94		56-145		
Indeno(1,2,3-cd)pyrene	1.00	0.985			99		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19084A94A	Sample number(s): 1013650-1013663								
Benzene	20	21.11	20	21.05	106	105	80-120	0	30
NWTPH-Gx water C7-C12	1100	1352.58	1100	1361.04	123	124	64-131	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 190850042A	Sample number(s): 1013650-1013659								
DX DRO C12-C24 w/ SiGel	600.97	199.01	600.97	227.6	33	38	10-115	13	20
Batch number: 190870014A	Sample number(s): 1013660-1013662								
DX DRO C12-C24 w/ SiGel	600.97	148.45	600.97	245.21	25	41	10-115	49*	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19081WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1013650	139*	55	74
1013651	98	66	64
1013652	120	82	73
1013653	110	71	76
1013654	89	62	87
1013655	106	67	71
1013656	104	48	73

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/04/2019 12:43

Group Number: 2034617

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19081WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1013657	82	69	77
1013658	86	73	68
1013659	84	25	73
Blank	80	74	55
LCS	101	91	57

Limits: 40-132 18-129 33-122

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19084WAG026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1013660	89	75	67
1013661	107	66	65
1013662	91	11*	64
Blank	86	78	70
LCS	94	82	72

Limits: 40-132 18-129 33-122

Analysis Name: Method 8021 Water Master

Batch number: 19084A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1013650	87	78
1013651	88	81
1013652	89	81
1013653	96	92
1013654	85	80
1013655	86	79
1013656	88	88
1013657	87	79
1013658	88	79
1013659	89	78
1013660	89	79
1013661	87	87
1013662	88	78
1013663	90	77
Blank	89	80
LCS	87	100
LCSD	87	100

Limits: 51-120 50-150

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/04/2019 12:43

Group Number: 2034617

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190850042A

	Orthoterphenyl	Capric Acid
1013650	55	0
1013651	67	0
1013652	69	0
1013653	68	0
1013654	53	0
1013655	68	0
1013656	72	0
1013657	74	0
1013658	65	0
1013659	67	0
Blank	74	0
LCS	67	0
LCSD	71	0
Limits:	50-150	0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190870014A

	Orthoterphenyl	Capric Acid
1013660	62	0
1013661	59	0
1013662	60	0
Blank	52	0
LCS	54	0
LCSD	79	0
Limits:	50-150	0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
Group # 2034617 Sample # 1013650-63
Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks		
Facility # <u>Edmonds Terminal</u> WBS <u>NWENVPME00143080</u>			<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	<input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil	Total Number of Containers BTEX-MTBE <input checked="" type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPAHS 8270 SIM											SCR #: _____		
Site Address <u>11720 unoco Rd, Edmonds, WA</u>																<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		
Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u>																		
Consultant/Office <u>1100 Olive way, suite 800, Seattle, WA</u>																		
Consultant Project Mgr. <u>Samuel Miles</u>																		
Sampler <u>Eric Kraeger, Jason Little, Kelsey Franz</u>																		
2 Sample Identification		3 Collected		Grab	Composite											6 Remarks		
Date	Time																	
<u>LM-2</u>	<u>3/19/19</u>	<u>1130</u>															* use standard SGC	
<u>MW-104</u>		<u>1215</u>																
<u>MW-129R</u>		<u>1250</u>																
<u>MW-525</u>		<u>0905</u>																
<u>MW-526</u>		<u>1310</u>																
<u>MW-530</u>		<u>1110</u>																
<u>MW-531</u>		<u>0945</u>																
<u>MW-532</u>		<u>0915</u>																
<u>MW-533</u>		<u>1005</u>																
<u>MW-534</u>		<u>1115</u>																
<u>MW-535</u>		<u>1000</u>																
<u>MW-E-R</u>		<u>1230</u>																
<u>DUP-1</u>																		
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u>		Date <u>3/19/19</u>	Time <u>1530</u>	Received by <u>FedEx</u>		Date <u>3/19/19</u>	Time <u>1530</u>							
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____		Date _____	Time _____	Received by _____		Date _____	Time _____							
8 Data Package (circle if required)				Relinquished by Commercial Carrier:		Temperature Upon Receipt <u>68-70 °F</u>		Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No										
Type I - Full		EDD (circle if required)		UPS _____ FedEx <input checked="" type="radio"/> Other _____		Date <u>3/20/19</u>		Time <u>1020</u>										
Type VI (Raw Data)		CVX-RTBU-FI_05 (default)		Other: _____														

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
 Group # 2034617 Sample # 1013650-43
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix		5 Analyses Requested										6 Remarks																											
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENVPMG00143080</u>		Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Oil <input type="checkbox"/>	Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Air <input type="checkbox"/>	Total Number of Containers 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> BTEX+MTBE <input type="checkbox"/> 8260 full scan <input type="checkbox"/>	Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/>	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/>	CPAHs <u>8270 SIM</u>	SCR #: _____																															
Site Address <u>11720 Unoco Rd, Edmonds, WA</u>		Chevron PM <u>Kim Jolitz</u>										Lead Consultant <u>Arcadis</u>																															
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u>		Consultant Project Mgr. <u>Samuel Miles</u>										Consultant Phone #																															
Sampler <u>Eric Krueger, Jason Little, Kelsey Franz</u>		3 Grab										Composite																															
2 Sample Identification		Collected										Soil		Water		Oil		Total Number of Containers		BTEX+MTBE		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method	
Date		Time										Grab		Composite		Soil		Water		Oil		Total Number of Containers		BTEX+MTBE		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total	
<u>Trip Blank</u>		<u>---</u>		<u>---</u>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>							
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by				Date		Time																									
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour								3/19/19		1530		FedEx				3/19/19		1530																									
8 Data Package (circle if required)								Relinquished by Commercial Carrier:				Date		Time		Received by				Date		Time																					
Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FI_05 (default) Other:				UPS <input type="checkbox"/> FedEx <input checked="" type="checkbox"/> Other <input type="checkbox"/>		3/20/19		1020						3/20/19		1020																							
				Temperature Upon Receipt				0.8-1.7 °C		Custody Seals Intact?				Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>																											

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.



Client: Chevron

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 03/20/2019 10:20
 Number of Packages: 3 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ariel Garcia (15332) at 19:16 on 03/20/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-02	1.7	DT	Wet	Y	Bagged	N
2	DT42-02	1.2	DT	Wet	Y	Bagged	N
3	DT42-02	0.8	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: April 05, 2019 15:46


Project: Edmonds Terminal

Account #: 11964
Group Number: 2034885
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To Arcadis
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Scott Zorn
Attn: Sam Miles
Attn: Jason Little
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Eric Krueger

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-20R-W-190320 Grab Groundwater	03/20/2019 12:00	1014886
MW-101-W-190320 Grab Groundwater	03/20/2019 11:30	1014887
MW-139R-W-190320 Grab Groundwater	03/20/2019 10:45	1014888
MW-502-W-190320 Grab Groundwater	03/20/2019 10:00	1014889
MW-503-W-190320 Grab Groundwater	03/20/2019 11:00	1014890
MW-504-W-190320 Grab Groundwater	03/20/2019 09:00	1014891
MW-505-W-190320 Grab Groundwater	03/20/2019 09:45	1014892
MW-506-W-190320 Grab Groundwater	03/20/2019 09:10	1014893
MW-506-W-190320 MS Grab Groundwater	03/20/2019 09:10	1014894
MW-506-W-190320 MSD Grab Groundwater	03/20/2019 09:10	1014895
MW-507-W-190320 Grab Groundwater	03/20/2019 08:30	1014896
MW-518-W-190320 Grab Groundwater	03/20/2019 11:15	1014897
MW-509-W-190320 Grab Groundwater	03/20/2019 10:15	1014898
DUP-2-WD-190320 Grab Groundwater	03/20/2019	1014899
QA-T-190320 NA Water	03/20/2019	1014900

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-20R-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014886
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 12:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	ug/l 0.01	ug/l 0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	ug/l 19	ug/l 250	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	ug/l 0.03	ug/l 1.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	ug/l 45	ug/l 100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 12:49	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 05:01	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 05:01	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 05:00	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 00:56	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014887
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 11:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 13:18	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 05:26	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 05:26	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 05:25	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 01:19	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014888
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.01 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	0.05	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:

The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.

GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1

GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 13:47	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 05:52	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 05:52	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 05:51	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 01:42	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014889
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	57	130	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	130	320	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 14:17	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 06:17	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 06:17	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 06:16	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 02:05	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014890
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 11:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 14:46	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 06:43	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 06:43	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 06:42	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 02:28	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014891
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 09:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.03 ug/l	1.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	250 ug/l	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 15:15	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19084A94A	03/26/2019 07:09	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19084A94A	03/26/2019 07:09	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19084A94A	03/26/2019 07:08	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 02:51	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014892
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 09:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 15:45	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/26/2019 23:39	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/26/2019 23:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/26/2019 23:38	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870014A	04/03/2019 03:14	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870014A	03/28/2019 17:30	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014893
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 10:22	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/26/2019 21:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/26/2019 21:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/26/2019 21:30	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 01:15	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-190320 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014894
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	1	0.01	0.06	1
14244	Chrysene	218-01-9	1	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.06	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	22	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	190	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 10:52	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/26/2019 22:48	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/26/2019 21:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/26/2019 21:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	2	19085A94A	03/26/2019 22:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 00:28	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-190320 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014895
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	1	0.01	0.05	1
14244	Chrysene	218-01-9	1	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	22	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	180	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 11:21	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/26/2019 23:13	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/26/2019 22:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/26/2019 22:21	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	2	19085A94A	03/26/2019 23:12	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 00:51	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx modified	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014896
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 08:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 16:14	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/27/2019 00:04	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/27/2019 00:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/27/2019 00:03	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 01:38	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014897
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 11:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles			SW-846 8270D SIM	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles			ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	480	19	250	1
GC Volatiles			SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si			ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 16:43	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/27/2019 00:30	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/27/2019 00:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/27/2019 00:29	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 02:01	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014898
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019 10:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 17:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Oswaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/27/2019 01:47	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/27/2019 01:47	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/27/2019 01:46	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 02:24	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-WD-190320 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014899
ELLE Group #: 2034885
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.						
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.03 ug/l	1.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47 ug/l	110 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110 ug/l	260 ug/l	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19085WAG026	03/27/2019 20:28	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19085WAG026	03/26/2019 17:00	Osvaldo R Sanchez	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/27/2019 02:12	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/27/2019 02:12	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/27/2019 02:11	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 02:47	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190320 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1014900
ELLE Group #: 2034885
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 03/21/2019 10:30
Collection Date/Time: 03/20/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
	SW-846 8021B		ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.03	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19085A94A	03/26/2019 20:40	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19085A94A	03/26/2019 20:40	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19085A94A	03/26/2019 20:39	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:46

Group Number: 2034885

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19085WAG026	Sample number(s): 1014886-1014899		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19084A94A	Sample number(s): 1014886-1014891		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19085A94A	Sample number(s): 1014892-1014900		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 190870014A	Sample number(s): 1014886-1014892		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	530	100	250
Batch number: 190870034A	Sample number(s): 1014893-1014899		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19085WAG026	Sample number(s): 1014886-1014899								
Benzo(a)anthracene	1.00	1.06			106		59-143		
Benzo(a)pyrene	1.00	1.28			128		63-145		
Benzo(b)fluoranthene	1.00	1.79			179*		63-152		
Benzo(k)fluoranthene	1.00	1.69			169*		62-143		
Chrysene	1.00	1.00			100		59-135		
Dibenz(a,h)anthracene	1.00	1.74			174*		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.67			167*		56-151		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:46

Group Number: 2034885

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19084A94A	Sample number(s): 1014886-1014891								
Benzene	20	21.11	20	21.05	106	105	80-120	0	30
NWTPH-Gx water C7-C12	1100	1352.58	1100	1361.04	123	124	64-131	1	30
Batch number: 19085A94A	Sample number(s): 1014892-1014900								
Benzene	20	21.43			107		80-120		
NWTPH-Gx water C7-C12	1100	1363.19			124		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 190870014A	Sample number(s): 1014886-1014892								
DX DRO C12-C24 w/ SiGel	600.97	148.45	600.97	245.21	25	41	10-115	49*	20
Batch number: 190870034A	Sample number(s): 1014893-1014899								
DX DRO C12-C24 w/ SiGel	600.97	221.87			37		10-115		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19085WAG026	Sample number(s): 1014886-1014899 UNSPK: 1014893									
Benzo(a)anthracene	N.D.	1.17	1.22	1.07	1.19	104	111	59-143	3	30
Benzo(a)pyrene	N.D.	1.17	1.11	1.07	1.09	94	102	63-145	2	30
Benzo(b)fluoranthene	N.D.	1.17	1.19	1.07	1.16	102	109	63-152	3	30
Benzo(k)fluoranthene	N.D.	1.17	1.15	1.07	1.13	98	105	62-143	2	30
Chrysene	N.D.	1.17	1.12	1.07	1.09	95	102	59-135	3	30
Dibenz(a,h)anthracene	N.D.	1.17	1.06	1.07	1.06	91	99	56-145	1	30
Indeno(1,2,3-cd)pyrene	N.D.	1.17	1.19	1.07	1.16	102	109	56-151	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19085A94A	Sample number(s): 1014892-1014900 UNSPK: 1014893									
Benzene	N.D.	20	22.03	20	22.49	110	112	80-120	2	30
NWTPH-Gx water C7-C12	N.D.	1100	1502.64	1100	1491.98	137*	136*	64-131	1	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 190870034A	Sample number(s): 1014893-1014899 UNSPK: 1014893									
DX DRO C12-C24 w/ SiGel	N.D.	639.33	186.81	623.41	182.82	29*	29*	30-115	2	20

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:46

Group Number: 2034885

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19085WAG026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1014886	93	53	57
1014887	95	81	53
1014888	83	64	51
1014889	79	60	48
1014890	96	80	52
1014891	85	42	56
1014892	103	27	67
1014893	98	45	63
1014894	99	77	57
1014895	111	84	74
1014896	105	65	66
1014897	102	53	78
1014898	85	14*	64
1014899	72	21	62
Blank	111	97	79
LCS	93	89	75
MS	99	77	57
MSD	111	84	74

Limits: 40-132 18-129 33-122

Analysis Name: Method 8021 Water Master
Batch number: 19084A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1014886	89	86
1014887	89	78
1014888	89	79
1014889	90	78
1014890	89	78
1014891	89	79
Blank	89	80
LCS	87	100
LCSD	87	100

Limits: 51-120 50-150

Analysis Name: Method 8021 Water Master
Batch number: 19085A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1014892	88	78

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:46

Group Number: 2034885

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master
Batch number: 19085A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1014893	89	82
1014894	87	101
1014895	87	100
1014896	89	78
1014897	86	77
1014898	88	78
1014899	88	79
1014900	88	80
Blank	90	79
LCS	87	98
MS	87	101
MSD	87	100
Limits:	51-120	50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190870014A

	Orthoterphenyl	Capric Acid
1014886	58	0
1014887	62	0
1014888	53	0
1014889	63	0
1014890	63	0
1014891	69	0
1014892	79	0
Blank	52	0
LCS	54	0
LCSD	79	0
Limits:	50-150	0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190870034A

	Orthoterphenyl	Capric Acid
1014893	71	0
1014894	69	0
1014895	77	0
1014896	67	0
1014897	77	0
1014898	71	0
1014899	84	0
Blank	79	0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:46

Group Number: 2034885

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190870034A

	Orthoterphenyl	Capric Acid
LCS	76	0
MS	69	0
MSD	77	0
Limits:	50-150	0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
 Group # 2034885 Sample # 1014880-900
Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks							
Facility # <u>Edmonds Terminal</u> WBS <u>NWENUPMG00143080</u>			Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>			Total Number of Containers BTEX+MTBE <input type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS 8270 SIM										SCR #: _____							
Site Address <u>11720 unoco rd, Edmonds, WA</u>			Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>													<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits							
Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u>			Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>																				
Consultant/Office <u>1100 olive way, suite 800, Seattle, WA</u>			Composite <input type="checkbox"/>																				
Consultant Project Mgr. <u>Samuel Miles</u>			Grab <input type="checkbox"/>																				
Consultant Phone # _____			Total Number of Containers																				
Sampler <u>Eric Krueger, Jason Little, Kelsey Franz</u>			Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>																				
2 Sample Identification		Collected																					
Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE	8021	8260	Naphth	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method		
<u>MW-2.0R</u>	<u>3/20/19</u>	<u>1200</u>					<u>7</u>																* use standard SGC
<u>MW-101</u>		<u>1130</u>					<u>7</u>																
<u>MW-139R</u>		<u>1045</u>					<u>7</u>																
<u>MW-502</u>		<u>1000</u>					<u>7</u>																
<u>MW-503</u>		<u>1100</u>					<u>7</u>																
<u>MW-504</u>		<u>0900</u>					<u>7</u>																
<u>MW-505</u>		<u>0945</u>					<u>7</u>																
<u>MW-506</u>		<u>0910</u>					<u>7</u>																
<u>MW-506 MS/MSD</u>		<u>0910</u>					<u>14</u>																
<u>MW-507</u>		<u>0830</u>					<u>7</u>																
<u>MW-518</u>		<u>1115</u>					<u>7</u>																
<u>MW-509</u>		<u>1015</u>					<u>7</u>																
<u>DUP-2</u>							<u>7</u>																
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u>			Date <u>3/20/19</u>	Time <u>1545</u>	Received by <u>FedEx</u>			Date <u>3/20/19</u>	Time <u>1545</u>	9									
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				Relinquished by _____			Date _____	Time _____	Received by _____			Date _____	Time _____										
8 Data Package (circle if required)				Relinquished by Commercial Carrier:			Received by <u>[Signature]</u>			Date <u>3/21/19</u>	Time <u>1030</u>												
Type I - Full				EDD (circle if required)			UPS _____ FedEx _____ Other _____			Temperature Upon Receipt <u>0.8-2.2°C</u>			Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No										
Type VI (Raw Data)				CVX-RTBU-FI_05 (default)			Other: _____																

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
 Group # 2034885 Sample # 1014880-900
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks			
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENVRUG00143080</u>		Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>	Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>	Water <input type="checkbox"/>	Oil <input type="checkbox"/>	Total Number of Containers <u>2</u>	BTEX+MTBE <input checked="" type="checkbox"/>	8260 full scan <input type="checkbox"/>	Oxygenates <input type="checkbox"/>	Naphth <input type="checkbox"/>	8260 <input checked="" type="checkbox"/>	NWTPH-Gx <input checked="" type="checkbox"/>	NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/>	WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/>	Total <input type="checkbox"/>	Diss. <input type="checkbox"/>	Method <input type="checkbox"/>	SCR #: _____
Site Address <u>11720 UNOCOR Rd, Edmonds, WA</u>		Lead Consultant <u>Arcadis</u>																					
Chevron PM <u>Kim Solitz</u>		Consultant/Office <u>1100 olive way, suite 800, Seattle, WA</u>																					
Consultant Project Mgr. <u>Samuel Miles</u>		Consultant Phone #																					
Sampler <u>Eric Krueger</u>																							
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	SCR #: _____	
Date	Time	Date	Time																				
<u>Trip Blank</u>	<u>—</u>	<u>—</u>	<u>—</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by <u>[Signature]</u> Date <u>3/20/19</u> Time <u>1545</u>		Received by <u>FedEx</u> Date <u>3/20/19</u> Time <u>1545</u>																	
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____		Received by <u>[Signature]</u> Date <u>3/21/19</u> Time <u>1030</u>																	
EDD (circle if required) CVX-RTBU-FI_05 (default)				Temperature Upon Receipt <u>0.8-2.2 °C</u>		Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No																	



Client: Chevron

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>03/21/2019 10:30</u>
Number of Packages:	<u>3</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Katherine Metzger (2241) at 02:00 on 03/22/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.2	DT	Wet	Y	Bagged	N
2	DT42-01	0.8	DT	Wet	Y	Bagged	N
3	DT42-01	0.9	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: April 05, 2019 15:47


Project: Edmonds Terminal

Account #: 11964
Group Number: 2035154
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To Arcadis
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Scott Zorn
Attn: Sam Miles
Attn: Jason Little
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Eric Krueger

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-8R-W-190321 Grab Groundwater	03/21/2019 11:00	1016420
MW-126-W-190321 Grab Groundwater	03/21/2019 11:20	1016421
MW-143-W-190321 Grab Groundwater	03/21/2019 11:45	1016422
MW-511-W-190321 Grab Groundwater	03/21/2019 08:40	1016423
MW-511-W-190321MS Grab Groundwater	03/21/2019 08:40	1016424
MW-511-W-190321MSD Grab Groundwater	03/21/2019 08:40	1016425
MW-512-W-190321 Grab Groundwater	03/21/2019 09:00	1016426
MW-513-W-190321 Grab Groundwater	03/21/2019 10:15	1016427
MW-514-W-190321 Grab Groundwater	03/21/2019 09:05	1016428
MW-515-W-190321 Grab Groundwater	03/21/2019 09:50	1016429
MW-516-W-190321 Grab Groundwater	03/21/2019 09:45	1016430
MW-517-W-190321 Grab Groundwater	03/21/2019 10:10	1016431
MW-519-W-190321 Grab Groundwater	03/21/2019 12:30	1016432
MW-522-W-190321 Grab Groundwater	03/21/2019 11:55	1016433
DUP-3-WD-190321 Grab Groundwater	03/21/2019	1016434
QA-T-190321 NA Water	03/21/2019	1016435

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-8R-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016420
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 11:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAG026	03/29/2019 00:21	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAG026	03/27/2019 17:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/28/2019 07:27	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/28/2019 07:27	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/28/2019 07:26	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 03:10	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016421
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 11:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAG026	03/29/2019 00:50	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAG026	03/27/2019 17:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/28/2019 07:52	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/28/2019 07:52	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/28/2019 07:51	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 04:20	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016422
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 11:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAG026	03/29/2019 01:19	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAG026	03/27/2019 17:45	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/28/2019 08:18	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/28/2019 08:18	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/28/2019 08:17	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190870034A	04/05/2019 04:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190870034A	03/29/2019 10:00	Joshua S Ruth	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016423
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 08:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 01:20	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/27/2019 20:44	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/27/2019 20:44	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/27/2019 20:43	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 06:38	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190321MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016424
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 08:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	1	0.01	0.05	1
14244	Chrysene	218-01-9	1	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	22	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	200	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 01:48	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/27/2019 22:01	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/27/2019 21:10	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/27/2019 21:09	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19086A94A	03/27/2019 22:00	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 05:52	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190321MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016425
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 08:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	1	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	22	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	220	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 02:16	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19086A94A	03/27/2019 22:27	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19086A94A	03/27/2019 21:35	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19086A94A	03/27/2019 21:34	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19086A94A	03/27/2019 22:26	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 06:15	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx modified	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016426
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 09:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 02:45	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 02:49	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 02:49	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 02:48	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 07:02	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016427
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 10:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 03:13	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 03:15	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 03:15	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 03:14	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 07:25	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016428
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 09:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 03:41	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 03:40	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 03:40	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 03:39	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 07:48	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016429
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 09:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 04:09	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 04:06	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 04:06	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 04:05	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 08:57	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016430
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 09:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 04:38	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 04:32	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 04:32	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 04:31	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 09:20	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016431
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 10:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 05:06	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 04:57	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 04:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 04:56	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 09:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016432
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 12:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	87 J	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 05:34	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 05:23	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 05:23	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 05:22	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 10:07	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016433
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019 11:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	190	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 06:02	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 06:39	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 06:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 06:38	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 10:30	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-WD-190321 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016434
ELLE Group #: 2035154
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	62 J	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19086WAM026	03/29/2019 06:30	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19086WAM026	03/28/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 07:05	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 07:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 07:04	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880013A	04/05/2019 10:53	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880013A	03/29/2019 16:30	Christine E Gleim	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190321 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016435
ELLE Group #: 2035154
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 03/22/2019 10:20
Collection Date/Time: 03/21/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1
GC Volatiles						
02102	Benzene	SW-846 8021B 71-43-2	ug/l N.D.	ug/l 0.5	ug/l 2.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 01:33	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 01:33	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 01:32	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:47

Group Number: 2035154

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19086WAG026	Sample number(s): 1016420-1016422		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19086WAM026	Sample number(s): 1016423-1016434		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19086A94A	Sample number(s): 1016420-1016425		
Benzene	N.D.	0.03	0.5
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19088A94A	Sample number(s): 1016426-1016435		
Benzene	N.D.	0.03	0.5
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 190870034A	Sample number(s): 1016420-1016422		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 190880013A	Sample number(s): 1016423-1016434		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:47

Group Number: 2035154

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19086WAG026	Sample number(s): 1016420-1016422								
Benzo(a)anthracene	1.00	1.07			107		59-143		
Benzo(a)pyrene	1.00	1.04			104		63-145		
Benzo(b)fluoranthene	1.00	1.08			108		63-152		
Benzo(k)fluoranthene	1.00	1.04			104		62-143		
Chrysene	1.00	0.970			97		59-135		
Dibenz(a,h)anthracene	1.00	1.02			102		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.13			113		56-151		
Batch number: 19086WAM026	Sample number(s): 1016423-1016434								
Benzo(a)anthracene	1.00	1.09			109		59-143		
Benzo(a)pyrene	1.00	1.16			116		63-145		
Benzo(b)fluoranthene	1.00	1.17			117		63-152		
Benzo(k)fluoranthene	1.00	1.12			112		62-143		
Chrysene	1.00	1.04			104		59-135		
Dibenz(a,h)anthracene	1.00	1.24			124		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.33			133		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19086A94A	Sample number(s): 1016420-1016425								
Benzene	20	20.85			104		80-120		
NWTPH-Gx water C7-C12	1100	1360.33			124		64-131		
Batch number: 19088A94A	Sample number(s): 1016426-1016435								
Benzene	20	21.51	20	21.68	108	108	80-120	1	30
NWTPH-Gx water C7-C12	1100	1354.6	1100	1339.15	123	122	64-131	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 190870034A	Sample number(s): 1016420-1016422								
DX DRO C12-C24 w/ SiGel	600.97	221.87			37		10-115		
Batch number: 190880013A	Sample number(s): 1016423-1016434								
DX DRO C12-C24 w/ SiGel	600.97	169			28		10-115		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19086WAM026	Sample number(s): 1016423-1016434 UNSPK: 1016423									
Benzo(a)anthracene	N.D.	1.07	1.12	1.05	1.03	105	98	59-143	8	30

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:47

Group Number: 2035154

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzo(a)pyrene	N.D.	1.07	1.11	1.05	0.984	103	93	63-145	12	30
Benzo(b)fluoranthene	N.D.	1.07	1.09	1.05	0.985	102	93	63-152	10	30
Benzo(k)fluoranthene	N.D.	1.07	1.06	1.05	0.945	99	90	62-143	11	30
Chrysene	N.D.	1.07	1.07	1.05	0.951	100	90	59-135	12	30
Dibenz(a,h)anthracene	N.D.	1.07	1.20	1.05	1.03	111	98	56-145	15	30
Indeno(1,2,3-cd)pyrene	N.D.	1.07	1.25	1.05	1.12	117	106	56-151	11	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19086A94A	Sample number(s): 1016420-1016425 UNSPK: 1016423									
Benzene	N.D.	20	22.33	20	22.06	112	110	80-120	1	30
NWTPH-Gx water C7-C12	N.D.	1100	1497.49	1100	1508.24	136*	137*	64-131	1	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 190880013A	Sample number(s): 1016423-1016434 UNSPK: 1016423									
DX DRO C12-C24 w/ SiGel	N.D.	636.62	196.92	603.38	223.31	31	37	30-115	13	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19086WAG026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1016420	72	66	52
1016421	103	81	59
1016422	72	65	62
Blank	101	97	64
LCS	94	87	66
Limits:	40-132	18-129	33-122

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19086WAM026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1016423	86	64	69
1016424	85	76	67
1016425	81	69	62
1016426	79	52	65
1016427	83	22	75

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:47

Group Number: 2035154

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19086WAM026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1016428	85	34	72
1016429	85	68	68
1016430	78	63	58
1016431	68	60	52
1016432	79	78	76
1016433	85	60	63
1016434	93	71	67
Blank	92	84	78
LCS	90	87	76
MS	85	76	67
MSD	81	69	62
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master

Batch number: 19086A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1016420	89	78
1016421	89	77
1016422	88	78
1016423	88	79
1016424	86	100
1016425	86	101
Blank	88	78
LCS	86	97
MS	86	100
MSD	86	101
Limits:	51-120	50-150

Analysis Name: Method 8021 Water Master

Batch number: 19088A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1016426	89	79
1016427	89	80
1016428	89	79
1016429	89	79
1016430	90	78
1016431	89	79
1016432	89	77
1016433	89	78
1016434	89	79

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/05/2019 15:47

Group Number: 2035154

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master
Batch number: 19088A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1016435	89	79
Blank	90	76
LCS	86	97
LCSD	86	97
Limits:	51-120	50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190870034A

	Orthoterphenyl	Capric Acid
1016420	76	0
1016421	73	0
1016422	83	0
Blank	79	0
LCS	76	0
Limits:	50-150	0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190880013A

	Orthoterphenyl	Capric Acid
1016423	70	0
1016424	77	0
1016425	82	0
1016426	83	0
1016427	82	0
1016428	80	0
1016429	65	0
1016430	79	0
1016431	87	0
1016432	90	0
1016433	93	0
1016434	92	0
Blank	73	0
LCS	79	0
MS	77	0
MSD	82	0
Limits:	50-150	0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035154 Sample # 1016420-35

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks																							
Facility #		WBS		Sediment <input type="checkbox"/>	Potable <input type="checkbox"/>	Ground <input checked="" type="checkbox"/>	Surface <input type="checkbox"/>	Oil <input type="checkbox"/>	Air <input type="checkbox"/>	Total Number of Containers	SCR #: _____																														
Edmonds Terminal		NWENVPM600143D80									<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																														
Site Address		11720 Unoco Rd, Edmonds, WA																																							
Chevron PM		Lead Consultant																																							
Kim Jolitz		Arcadis																																							
Consultant/Office		1100 Olive Way, Suite 800, Seattle, WA		Soil <input type="checkbox"/>	Water NPDES <input type="checkbox"/>	Water	NPDES	Oil	Air	Total Number of Containers	CPAHs 8270 SIM																														
Consultant Project Mgr.		Samuel Miles																																							
Consultant Phone #																																									
Sampler		Eric Krueger, Jason Little, Kelsey Franz																																							
Sample Identification		Collected									Composite <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	8260 full scan																							
		Date	Time	Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers								BTEX+MTBE Benzene																							
MW-8R		3/21/19	1100															Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	Oxygenates																
MW-12U			1120																						Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	NWTPH-Gx									
MW-143			1145																													Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	NWTPH-Dx with Silica Gel Cleanup		
MW-511			0840								Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers																						NWTPH-Dx without Silica Gel Cleanup		
MW-501 MS/MSD			0840	Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers																													WA VPH		
MW-512			0900															Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers															Lead		
MW-513			1015																						Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers								Total		
MW-514			0905																													Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	Diss.		
MW-515			0950								Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers																						Method		
MW-516			0945	Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers																													CPAHs 8270 SIM		
MW-517			1010															Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers															CPAHs 8270 SIM		
MW-519			1230																						Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers								CPAHs 8270 SIM		
MW-522			1155																													Grab <input type="checkbox"/>	Soil	Water	NPDES	Oil	Air	Total Number of Containers	CPAHs 8270 SIM		
7 Turnaround Time Requested (TAT) (please circle)											Relinquished by				Date		Time																						Received by		Date
Standard 5 day 4 day								3/21/2019		1545		FedEx		3/21/2019		1545																									
72 hour 48 hour 24 hour																																									
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Date		Time		Received by		Date		Time																									
Type I - Full				UPS _____ FedEx _____ Other _____										3-21-19		1000																									
Type VI (Raw Data)				Temperature Upon Receipt <u>0.6-0.8°C</u>								Custody Seals Intact?		Yes		No																									

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035154 Sample # 1016430-35

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix			5 Analyses Requested										6 Remarks						
Facility # <u>Edmonds Terminal</u> WBS <u>NWENVPMG00143080</u>		Site Address <u>11720 Unoco Rd, Edmonds, WA</u>		Sediment <input type="checkbox"/>	Potable <input type="checkbox"/>	Water <input type="checkbox"/>	Oil <input type="checkbox"/>	Total Number of Containers	BTEX+MTBE <input type="checkbox"/>	8260 full scan <input type="checkbox"/>	Oxygenates <input type="checkbox"/>	NWTPh-Gx <input type="checkbox"/>	NWTPh-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPh-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/>	Lead <input type="checkbox"/>	Total <input type="checkbox"/>	Diss. <input type="checkbox"/>	Method <input type="checkbox"/>	SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits	8021 <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits <input type="checkbox"/>		
Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u>		Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u>																					Ground <input checked="" type="checkbox"/>
Consultant Project Mgr. <u>Samuel Miles</u>		Consultant Phone #		Soil <input type="checkbox"/>	NPDES <input type="checkbox"/>	Air <input type="checkbox"/>														9 Date <u>3/21/19</u> Time <u>1545</u> Received by <u>FedEx</u>			
Sampler <u>Eric Krueger, Janna Little, Kelsey Franz</u>		3		Composite <input type="checkbox"/>																		9 Date <u>3-21-19</u> Time <u>1545</u> Received by <u>[Signature]</u>	
2 Sample Identification		Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE	8260 full scan	Oxygenates	NWTPh-Gx	NWTPh-Dx with Silica Gel Cleanup	NWTPh-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method	6 Remarks		
<u>DUP-3</u>		<u>3/21/19</u>	<u>---</u>	↓			↓		7	↓			↓	↓							↓	KLW Standard SGC	
<u>TRIP BLANK</u>		<u>3/21/19</u>	<u>---</u>	↓			↓			↓			↓	↓							↓		
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u>			Date <u>3/21/19</u>	Time <u>1545</u>	Received by <u>FedEx</u>			Date <u>3/21/19</u>	Time <u>1545</u>	9									
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____			Date _____	Time _____	Received by _____			Date _____	Time _____										
8 Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____				Received by <u>[Signature]</u>				Date <u>3-21-19</u>	Time <u>1545</u>										
Type I - Full		CVX-RTBU-FI_05 (default)		Temperature Upon Receipt <u>0.6-0.8 °C</u>				Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No															
Type VI (Raw Data)		Other: _____																					



Client: Arcadis

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>03/22/2019 10:20</u>
Number of Packages:	<u>3</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8943) at 18:41 on 03/22/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.6	DT	Wet	Y	Bagged	N
2	DT131	0.8	DT	Wet	Y	Bagged	N
3	DT131	0.6	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: April 09, 2019 20:45


Project: Edmonds Terminal

Account #: 11964
Group Number: 2035236
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To Arcadis
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Scott Zorn
Attn: Sam Miles
Attn: Jason Little
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Eric Krueger

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-520-W-190322 Grab Groundwater	03/22/2019 09:10	1016997
MW-521-W-190322 Grab Groundwater	03/22/2019 09:00	1016998
DUP-4-WD-190322 Grab Groundwater	03/22/2019	1016999
QA-T-190322 NA Water	03/22/2019	1017000

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-520-W-190322 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016997
ELLE Group #: 2035236
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/23/2019 09:50
Collection Date/Time: 03/22/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19087WAC026	03/30/2019 14:59	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19087WAC026	03/28/2019 17:30	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 07:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 07:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 07:30	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880032A	04/09/2019 01:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880032A	04/01/2019 09:30	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-W-190322 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016998
ELLE Group #: 2035236
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 03/23/2019 09:50
Collection Date/Time: 03/22/2019 09:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	75 J	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19087WAC026	03/30/2019 15:27	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19087WAC026	03/28/2019 17:30	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 07:56	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 07:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 07:55	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880032A	04/09/2019 02:06	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880032A	04/01/2019 09:30	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-190322 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1016999
ELLE Group #: 2035236
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 03/23/2019 09:50
Collection Date/Time: 03/22/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19087WAC026	03/30/2019 15:56	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19087WAC026	03/28/2019 17:30	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 08:22	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 08:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 08:21	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	190880032A	04/09/2019 02:29	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	190880032A	04/01/2019 09:30	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190322 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1017000
ELLE Group #: 2035236
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 03/23/2019 09:50
Collection Date/Time: 03/22/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19088A94A	03/30/2019 01:58	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19088A94A	03/30/2019 01:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19088A94A	03/30/2019 01:57	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/09/2019 20:45

Group Number: 2035236

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19087WAC026	Sample number(s): 1016997-1016999		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19088A94A	Sample number(s): 1016997-1017000		
Benzene	N.D.	0.03	0.5
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 190880032A	Sample number(s): 1016997-1016999		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19087WAC026	Sample number(s): 1016997-1016999								
Benzo(a)anthracene	1.00	0.961			96		59-143		
Benzo(a)pyrene	1.00	1.02			102		63-145		
Benzo(b)fluoranthene	1.00	1.09			109		63-152		
Benzo(k)fluoranthene	1.00	1.00			100		62-143		
Chrysene	1.00	0.940			94		59-135		
Dibenz(a,h)anthracene	1.00	1.01			101		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.09			109		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19088A94A	Sample number(s): 1016997-1017000								
Benzene	20	21.51	20	21.68	108	108	80-120	1	30
NWTPH-Gx water C7-C12	1100	1354.6	1100	1339.15	123	122	64-131	1	30
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/09/2019 20:45

Group Number: 2035236

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 190880032A DX DRO C12-C24 w/ SiGel	Sample number(s): 1016997-1016999								
	600.97	319.43	600.97	207.07	53	34	10-115	43*	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19087WAC026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1016997	85	56	45
1016998	81	64	49
1016999	79	63	51
Blank	102	84	61
LCS	83	80	60
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master
Batch number: 19088A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1016997	88	79
1016998	89	79
1016999	89	77
1017000	89	79
Blank	90	76
LCS	86	97
LCSD	86	97
Limits:	51-120	50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190880032A

	Orthoterphenyl	Capric Acid
1016997	77	0
1016998	71	0
1016999	77	0
Blank	66	0
LCS	64	0
LCSD	70	0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 04/09/2019 20:45

Group Number: 2035236

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 190880032A

Limits: 50-150 0-1

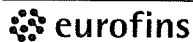
*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035236 Sample # 1016997-7000

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix			5 Analyses Requested										6 Remarks								
Facility # <u>Edmonds Terminal</u>		WBS <u>NWENVPM600143080</u>		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil	Total Number of Containers 8260 full scan 8260	<input type="checkbox"/> BTEX+MTBE <input type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth	<input type="checkbox"/> Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	<input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH Lead Total Diss. Method CPAHs 8270 SIM	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy's on highest hit <input type="checkbox"/> Run ___ oxy's on all hits	SCR #: _____															
Site Address <u>11720 UNOCO Rd, Edmonds, WA</u>		Chevron PM <u>Kim Jolitz</u>								Lead Consultant <u>Arcadis</u>		Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u>		Consultant Project Mgr. <u>Samuel Miles</u>		Consultant Phone #									
Sampler <u>Eric Krueger, Jason Little</u>		Collected Date <u>3/22/19</u>								Time <u>0910</u>		Grab <input checked="" type="checkbox"/>		Composite <input type="checkbox"/>		Soil <input type="checkbox"/>		Water <input checked="" type="checkbox"/>		Oil <input type="checkbox"/>		Total Number of Containers		Remarks	
2 Sample Identification																									
<u>MW-520</u>		<u>3/22/19</u>								<u>0910</u>		<input checked="" type="checkbox"/>												* use standard SGC	
<u>MW-521</u>		<u>↓</u>								<u>0900</u>		<input checked="" type="checkbox"/>													
<u>DUP-4</u>		<u>↓</u>				<input checked="" type="checkbox"/>																			
<u>Trip Blank</u>		<u>---</u>		<u>---</u>		<input checked="" type="checkbox"/>																			
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by 			Date <u>3/22/19</u>		Time <u>1200</u>		Received by <u>FedEx</u>			Date <u>3/22/19</u>		Time <u>1200</u>		9							
Standard (circled) 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by			Date		Time		Received by			Date		Time									
8 Data Package (circle if required)				Relinquished by Commercial Carrier:			Received by					Date		Time											
Type I - Full				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____								<u>3/23/19</u>		<u>0950</u>											
Type VI (Raw Data)				Other: _____			Temperature Upon Receipt <u>0.7</u> °C					Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													



Client: Chevron c/o Arcadis

Edmonds Terminal

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>03/23/2019 9:50</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 16:29 on 03/23/2019

Samples Chilled Details: Edmonds Terminal

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT42-01	0.7	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: July 18, 2019 17:22


Project: Edmonds Terminal

Account #: 11964
Group Number: 2049352
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

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Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-513-W-190617 Grab Groundwater	06/17/2019 14:30	1082795
MW-515-W-190617 Grab Groundwater	06/17/2019 14:35	1082796
MW-516-W-190617 Grab Groundwater	06/17/2019 14:10	1082797
MW-517-W-190617 Grab Groundwater	06/17/2019 14:20	1082798
QA-T-190617 NA Water	06/17/2019	1082799

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-513-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082795
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	22 J	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	460	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	6,910	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Due to an analyst error, the bracketing project specific limit of quantitation (LOQ) check standard was not analyzed at the beginning and end of the analytical sequence.						
00228	Sulfate	14808-79-8	514,000	30,000	100,000	100
Due to an analyst error, the bracketing project specific limit of quantitation (LOQ) check standard was not analyzed at the beginning and end of the analytical sequence.						

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082795
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/18/2019 10:20

Collection Date/Time: 06/17/2019 14:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19169WAZ026	06/19/2019 17:02	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19169WAZ026	06/19/2019 02:00	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 20:53	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 20:53	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 20:52	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191700003A	06/19/2019 21:33	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191700015A	06/22/2019 12:19	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191700015A	06/19/2019 19:30	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705002A	06/21/2019 20:42	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705002	06/19/2019 04:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19169963106B	06/19/2019 06:54	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19169963106B	07/17/2019 23:55	Ashlynn M Cornelius	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082796
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	160	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,920	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Due to an analyst error, the bracketing project specific limit of quantitation (LOQ) check standard was not analyzed at the beginning and end of the analytical sequence.						
00228	Sulfate	14808-79-8	990,000	150,000	500,000	500
Due to an analyst error, the bracketing project specific limit of quantitation (LOQ) check standard was not analyzed at the beginning and end of the analytical sequence.						

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082796
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/18/2019 10:20

Collection Date/Time: 06/17/2019 14:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19169WAZ026	06/19/2019 17:32	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19169WAZ026	06/19/2019 02:00	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 21:18	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 21:18	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 21:17	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191700003A	06/19/2019 21:51	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191700015A	06/22/2019 12:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191700015A	06/19/2019 19:30	Oswaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705002A	06/21/2019 21:13	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705002	06/19/2019 04:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19169963106B	06/19/2019 07:12	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19169963106B	07/09/2019 14:21	Ashlynn M Cornelius	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082797
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	190	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1,740	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	192,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19169WAZ026	06/19/2019 18:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19169WAZ026	06/19/2019 02:00	Mathias Okpo	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 21:44	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082797
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 21:44	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 21:43	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191710014A	06/20/2019 10:38	Connor Lent	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191700015A	06/22/2019 13:07	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191700015A	06/19/2019 19:30	Osvaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705003A	06/21/2019 18:01	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705003	06/19/2019 07:00	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19169963106B	06/19/2019 05:46	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19169963106B	07/09/2019 13:47	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082798
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	310	3.0	5.0	1
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,450	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	320,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19169WAZ026	06/19/2019 18:30	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19169WAZ026	06/19/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-190617 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082798
ELLE Group #: 2049352
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019 14:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 22:09	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 22:09	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 22:08	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191710014A	06/20/2019 10:54	Connor Lent	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191700015A	06/22/2019 13:31	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191700015A	06/19/2019 19:30	Osvaldo R Sanchez	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705002A	06/21/2019 21:08	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705002	06/19/2019 04:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19169963106B	06/19/2019 06:03	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19169963106B	07/09/2019 14:04	Ashlynn M Cornelius	100

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190617 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1082799
ELLE Group #: 2049352
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 06/18/2019 10:20
Collection Date/Time: 06/17/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
	SW-846 8021B		ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 20:02	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 20:02	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 20:01	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/18/2019 17:22

Group Number: 2049352

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19169WAZ026	Sample number(s): 1082795-1082798		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19171E94A	Sample number(s): 1082795-1082799		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 191700003A	Sample number(s): 1082795-1082796		
Methane	N.D.	3.0	5.0
Batch number: 191710014A	Sample number(s): 1082797-1082798		
Methane	N.D.	3.0	5.0
Batch number: 191700015A	Sample number(s): 1082795-1082798		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191700705002A	Sample number(s): 1082795-1082796,1082798		
Manganese	N.D.	4.9	10.0
Batch number: 191700705003A	Sample number(s): 1082797		
Manganese	N.D.	4.9	10.0
Batch number: 19169963106B	Sample number(s): 1082795-1082798		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19169WAZ026	Sample number(s): 1082795-1082798								
Benzo(a)anthracene	1.00	0.916	1.00	0.949	92	95	59-143	3	30

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/18/2019 17:22

Group Number: 2049352

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	1.00	1.01	1.00	1.07	101	107	63-145	5	30
Benzo(b)fluoranthene	1.00	0.985	1.00	1.05	99	105	63-152	6	30
Benzo(k)fluoranthene	1.00	0.953	1.00	0.997	95	100	62-143	5	30
Chrysene	1.00	0.829	1.00	0.836	83	84	59-135	1	30
Dibenz(a,h)anthracene	1.00	1.03	1.00	1.04	103	104	56-145	1	30
Indeno(1,2,3-cd)pyrene	1.00	1.08	1.00	1.10	108	110	56-151	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19171E94A	Sample number(s): 1082795-1082799								
Benzene	20	20.45			102		80-120		
NWTPH-Gx water C7-C12	1100	1351.42	1100	1378.28	123	125	64-131	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191700003A	Sample number(s): 1082795-1082796								
Methane	59.83	63.38			106		85-115		
Batch number: 191710014A	Sample number(s): 1082797-1082798								
Methane	59.83	57.6	59.83	58.75	96	98	85-115	2	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191700015A	Sample number(s): 1082795-1082798								
DX DRO C12-C24 w/ SiGel	600.29	127.61	600.29	177.33	21	30	10-115	33*	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191700705002A	Sample number(s): 1082795-1082796,1082798								
Manganese	50	54.65			109		85-115		
Batch number: 191700705003A	Sample number(s): 1082797								
Manganese	50	54.36			109		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19169963106B	Sample number(s): 1082795-1082798								
Nitrate Nitrogen	750	728.68			97		90-110		
Sulfate	7500	7227.11			96		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
---------------	--------------------	---------------------	--------------	----------------------	---------------	---------	----------	---------------	-----	---------

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/18/2019 17:22

Group Number: 2049352

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 191700705002A Manganese	6914.96	50	6706.68	1082795-1082796,1082798 UNSPK: 1082795		-417 (2)		70-130		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 191700705002A Manganese	6914.96	6791.34	2	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19169WAZ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1082795	90	41	82
1082796	114	20	83
1082797	89	21	84
1082798	114	36	78
Blank	118	118	92
LCS	86	106	88
LCSD	92	111	86
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master
Batch number: 19171E94A

	Trifluorotoluene-P	Trifluorotoluene-F
1082795	88	78
1082796	88	81
1082797	88	78
1082798	89	79

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/18/2019 17:22

Group Number: 2049352

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master
Batch number: 19171E94A

	Trifluorotoluene-P	Trifluorotoluene-F
1082799	88	79
Blank	88	80
LCS	85	94

Limits: 51-120 50-150

	Trifluorotoluene-F
LCSD	97

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191700003A

	Propene
1082795	63
1082796	58
Blank	109
LCS	105

Limits: 46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191700015A

	Orthoterphenyl	Capric Acid
1082795	74	0
1082796	77	0
1082797	74	0
1082798	74	0
Blank	67	0
LCS	57	0
LCSD	70	0

Limits: 50-150 0-1

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191710014A

	Propene
1082797	75
1082798	62
Blank	116
LCS	107

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/18/2019 17:22

Group Number: 2049352

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 191710014A

Propene

LCSD	110
------	-----

Limits:	46-135
---------	--------

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories
Environmental**

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035236 Sample # 1082795-99

Instructions on reverse side correspond with circled numbers.

2049352

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks							
Facility # <u>Edmonds Terminal NWENVPMG00143080</u>			Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>			<input type="checkbox"/> Naphth <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS 8270 SIM Nitrate Nitrogen Sulfate Methane PSK 175 Dissolved Manganese										SCR #: _____							
Site Address <u>11720 Unoce Rd, Edmonds WA</u>			Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>																				
Chevron PM <u>Kim Jolitz</u>			Oil <input type="checkbox"/>																				
Lead Consultant <u>Arcadis</u>			Total Number of Containers																				
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>			Soil <input type="checkbox"/>																				
Consultant Project Mgr. <u>Samuel Miles</u>			Water <input type="checkbox"/>																				
Consultant Phone # _____			Grab <input type="checkbox"/> Composite <input type="checkbox"/>																				
Sampler <u>Foss LaGrandeur, Kiley Zaubi, Helsey Franz, Alex Pink</u>			BTEX-WTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>																				
2 Sample Identification		Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-WTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>	Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/>	CPAHS 8270 SIM	Nitrate Nitrogen Sulfate	Methane PSK 175	Dissolved Manganese	6 Remarks	
Date	Time																						
MW-513	6/17/19	1430	X							X			X	X				X	X	X	X	X	* use standard SGC
MW-515	6/17/19	1435	X							X			X	X				X	X	X	X	X	
MW-516	6/17/19	1410	X							X			X	X				X	X	X	X	X	
MW-517	6/17/19	1420	X							X			X	X				X	X	X	X	X	
Trip Blank	—	—	X							X			X	X				X	X	X	X	X	
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u>			Date <u>6/17/19</u>		Time <u>1600</u>		Received by <u>FedEx</u>			Date <u>6/17/19</u>		Time <u>1600</u>		9					
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____			Date _____		Time _____		Received by _____			Date _____		Time _____							
8 Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier:						Received by <u>[Signature]</u>			Date <u>6/18/19</u>		Time <u>1020</u>								
Type I - Full		CVX-RTBU-FI_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____																			
Type VI (Raw Data)		Other: _____		Temperature Upon Receipt <u>1.1</u> °C						Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No													

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTac Courier. The pink copy should be retained by the client.



Client: Arcadis

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>06/18/2019 10:20</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	1
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 11:04 on 06/18/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT42-03	1.1	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: July 17, 2019 10:59


Project: Edmonds Terminal

Account #: 11964
Group Number: 2049603
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-8R-W-190618 Grab Groundwater	06/18/2019 11:30	1083669
MW-522-W-190618 Grab Groundwater	06/18/2019 13:30	1083670
MW-101-W-190618 Grab Groundwater	06/18/2019 10:05	1083671
MW-518-W-190618 Grab Groundwater	06/18/2019 10:00	1083672
MW-139R-W-190618 Grab Groundwater	06/18/2019 13:45	1083673
MW-514-W-190618 Grab Groundwater	06/18/2019 11:10	1083674
MW-512-W-190618 Grab Groundwater	06/18/2019 12:30	1083675
MW-511-W-190618 Grab Groundwater	06/18/2019 13:00	1083676
MW-502-W-190618 Grab Groundwater	06/18/2019 10:10	1083677
MW-503-W-190618 Grab Groundwater	06/18/2019 12:10	1083678
MW-504-W-190618 Grab Groundwater	06/18/2019 14:00	1083679
DUP-1-WD-190618 Grab Groundwater	06/18/2019	1083680
QA-T-190618 NA Water	06/18/2019	1083681

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-8R-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083669
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 11:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	11	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	140	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Target analytes were detected in the method blank associated with the samples as noted in the QC summary. However, the observed pattern in the method blank is not typical of #2 fuel/diesel. The reported detection in this sample matches the pattern in the method blank.						
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	13.6	4.9	10.0	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	330 J	250	500	5
00228	Sulfate	14808-79-8	18,900	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
---------	---------------	--------	--------	--------	------------------------	---------	-----------------

*=This limit was used in the evaluation of the final result

Sample Description: MW-8R-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083669
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 11:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 02:06	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 23:53	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 23:53	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 23:52	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191710015A	06/20/2019 15:39	Connor Lent	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 10:31	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705005A	06/25/2019 10:03	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705005	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 07:33	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106B	07/11/2019 21:35	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083670
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 13:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	160	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	510	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Target analytes were detected in the method blank associated with the samples as noted in the QC summary. However, the observed pattern in the method blank is not typical of #2 fuel/diesel. The reported detection in this sample matches the pattern in the method blank.						
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	640	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	350 J	250	500	5
00228	Sulfate	14808-79-8	70,700	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083670
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 13:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 02:35	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 00:19	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 00:19	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 00:18	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191710015A	06/20/2019 15:58	Connor Lent	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 10:55	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:30	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106B	06/20/2019 09:32	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106B	07/16/2019 20:03	Anna Campanella	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083671
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 10:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	27 J	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	55	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	120	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Target analytes were detected in the method blank associated with the samples as noted in the QC summary. However, the observed pattern in the method blank is not typical of #2 fuel/diesel. The reported detection in this sample matches the pattern in the method blank.						
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	870	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	580	250	500	5
00228	Sulfate	14808-79-8	131,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083671
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 10:05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 03:05	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 01:36	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 01:36	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 01:35	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/21/2019 14:47	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 11:19	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:40	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 06:07	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	07/11/2019 04:00	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083672
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.01 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.02 J	0.01	0.05	1
14244	Chrysene	218-01-9	0.01 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.02 J	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	760	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3,200	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	290	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	273	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	29,900	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 03:34	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 02:01	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083672
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 10:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 02:01	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 02:00	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 16:01	Johanna C Kennedy	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 11:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:43	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 05:50	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	06/20/2019 05:50	Anna Campanella	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083673
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 13:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	18	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	75 J	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Target analytes were detected in the method blank associated with the samples as noted in the QC summary. However, the observed pattern in the method blank is not typical of #2 fuel/diesel. The reported detection in this sample matches the pattern in the method blank.						
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	40.6	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	360 J	250	500	5
00228	Sulfate	14808-79-8	1,390,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083673
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 13:45

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 04:04	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 02:27	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 02:27	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 02:26	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/21/2019 15:21	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 12:07	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191710705003A	06/26/2019 18:56	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191710705003	06/20/2019 04:52	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106B	06/20/2019 09:49	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	07/11/2019 05:08	Ashlynn M Cornelius	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083674
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 11:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	660	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	140	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	7,520	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	440 J	250	500	5
00228	Sulfate	14808-79-8	194,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 04:34	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 02:53	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083674
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 11:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 02:53	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 02:52	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 16:16	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 12:30	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:31	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 06:42	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	07/11/2019 04:17	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083675
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 12:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	340	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	160	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,740	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	116,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 05:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 03:19	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083675
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 12:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 03:19	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 03:18	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/21/2019 15:55	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 12:54	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:33	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 08:24	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	07/11/2019 04:51	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083676
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 13:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	91 J	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Target analytes were detected in the method blank associated with the samples as noted in the QC summary. However, the observed pattern in the method blank is not typical of #2 fuel/diesel. The reported detection in this sample matches the pattern in the method blank.						
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	N.D.	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	660	250	500	5
00228	Sulfate	14808-79-8	31,300	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
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*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083676
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10

Collection Date/Time: 06/18/2019 13:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 05:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 03:44	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 03:44	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 03:43	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/21/2019 16:11	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710010A	06/26/2019 13:18	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710010A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:41	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106B	06/20/2019 08:41	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106B	07/11/2019 20:27	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083677
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 10:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	6.6	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	254	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	24,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 06:02	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 04:10	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083677
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 10:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 04:10	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 04:09	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 16:32	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710011A	06/22/2019 15:30	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710011A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:44	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 06:24	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	06/20/2019 06:24	Anna Campanella	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083678
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 12:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.01 J	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.02 J	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.03 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.03 J	0.01	0.05	1
14244	Chrysene	218-01-9	0.02 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.05 J	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.05 J	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	90	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	520	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	420 J	250	500	5
00228	Sulfate	14808-79-8	30,100	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 06:32	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 04:36	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083678
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 12:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 04:36	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 04:35	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 16:53	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710011A	06/22/2019 15:54	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710011A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191710705003A	06/26/2019 19:08	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191710705003	06/20/2019 04:52	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 08:07	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106B	07/11/2019 21:18	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083679
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 14:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	610	15	25	5
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	7,010	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	480 J	250	500	5
00228	Sulfate	14808-79-8	508,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 08:21	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 05:01	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083679
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019 14:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 05:01	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 05:00	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 17:27	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710011A	06/22/2019 16:18	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710011A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:39	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106B	06/20/2019 11:15	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	07/11/2019 18:10	Ashlynn M Cornelius	100

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083680
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.01 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.01 J	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.03 J	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	4.5 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	250	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	23,600	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAE026	06/21/2019 08:51	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAE026	06/20/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/26/2019 05:27	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-190618 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083680
ELLE Group #: 2049603
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/26/2019 05:27	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/26/2019 05:26	Marie D Beamenderfer	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 17:44	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710011A	06/22/2019 16:42	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710011A	06/20/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191700705006A	06/25/2019 12:37	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191700705006	06/20/2019 04:40	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19170963106A	06/20/2019 04:42	Anna Campanella	5
00228	Sulfate	EPA 300.0	1	19170963106A	06/20/2019 04:42	Anna Campanella	5

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190618 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1083681
ELLE Group #: 2049603
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 06/19/2019 10:10
Collection Date/Time: 06/18/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19171E94A	06/25/2019 20:27	Marie D Beamenderfer	1
02102	Method 8021 Water Master	SW-846 8021B	1	19171E94A	06/25/2019 20:27	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19171E94A	06/25/2019 20:26	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 19171WAE026	Sample number(s): 1083669-1083680		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19171E94A	Sample number(s): 1083669-1083681		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 191710015A	Sample number(s): 1083669-1083670		
Methane	N.D.	3.0	5.0
Batch number: 191720005A	Sample number(s): 1083671-1083680		
Methane	N.D.	3.0	5.0
Batch number: 191710010A	Sample number(s): 1083669-1083676		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191710011A	Sample number(s): 1083677-1083680		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191700705005A	Sample number(s): 1083669		
Manganese	N.D.	4.9	10.0
Batch number: 191700705006A	Sample number(s): 1083670-1083672,1083674-1083677,1083679-1083680		
Manganese	N.D.	4.9	10.0
Batch number: 191710705003A	Sample number(s): 1083673,1083678		
Manganese	N.D.	4.9	10.0
Batch number: 19170963106A	Sample number(s): 1083669,1083671-1083675,1083677-1083680		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19170963106B	Sample number(s): 1083669-1083670,1083673,1083676,1083678-1083679		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19171WAE026	Sample number(s): 1083669-1083680								
Benzo(a)anthracene	1.00	0.996	1.00	1.01	100	101	59-143	2	30
Benzo(a)pyrene	1.00	1.13	1.00	1.14	113	114	63-145	0	30
Benzo(b)fluoranthene	1.00	1.08	1.00	1.09	108	109	63-152	1	30
Benzo(k)fluoranthene	1.00	1.09	1.00	1.10	109	110	62-143	0	30
Chrysene	1.00	0.897	1.00	0.912	90	91	59-135	2	30
Dibenz(a,h)anthracene	1.00	1.23	1.00	1.23	123	123	56-145	0	30
Indeno(1,2,3-cd)pyrene	1.00	1.27	1.00	1.28	127	128	56-151	0	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19171E94A	Sample number(s): 1083669-1083681								
Benzene	20	20.45			102		80-120		
NWTPH-Gx water C7-C12	1100	1351.42	1100	1378.28	123	125	64-131	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191710015A	Sample number(s): 1083669-1083670								
Methane	59.83	62.51			104		85-115		
Batch number: 191720005A	Sample number(s): 1083671-1083680								
Methane	59.83	61.51	59.83	59.63	103	100	85-115	3	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191710010A	Sample number(s): 1083669-1083676								
DX DRO C12-C24 w/ SiGel	600.29	324.65	600.29	289.7	54	48	10-115	11	20
Batch number: 191710011A	Sample number(s): 1083677-1083680								
DX DRO C12-C24 w/ SiGel	600.29	225.63	600.29	228.33	38	38	10-115	1	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191700705005A	Sample number(s): 1083669								
Manganese	50	49.12			98		85-115		
Batch number: 191700705006A	Sample number(s): 1083670-1083672,1083674-1083677,1083679-1083680								
Manganese	50	52.16			104		85-115		
Batch number: 191710705003A	Sample number(s): 1083673,1083678								
Manganese	50	53.15			106		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19170963106A	Sample number(s): 1083669,1083671-1083675,1083677-1083680								
Nitrate Nitrogen	750	732.4			98		90-110		
Sulfate	7500	7830.68			104		90-110		
Batch number: 19170963106B	Sample number(s): 1083669-1083670,1083673,1083676,1083678-1083679								

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nitrate Nitrogen	750	732.4			98		90-110		
Sulfate	7500	7830.68			104		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 191710705003A Manganese	40.64	50	89.38			97		70-130		
Batch number: 19170963106A Nitrate Nitrogen	N.D.	2500	2651.26			106		90-110		
Sulfate	23625.16	25000	53915.26			121*		90-110		
Batch number: 19170963106B Nitrate Nitrogen	660.6	2500	3493.45			113*		90-110		
Sulfate	31302.8	25000	59819.95			114*		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 191710705003A Manganese	40.64	40.86	1 (1)	20
Batch number: 19170963106A Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	23625.16	24154.41	2 (1)	15
Batch number: 19170963106B Nitrate Nitrogen	660.6	684.73	4 (1)	15
Sulfate	31302.8	31156.11	0	15

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19171WAE026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1083669	91	106	86
1083670	94	89	96
1083671	94	36	90
1083672	92	70	101
1083673	127	100	97
1083674	85	35	79
1083675	95	27	93
1083676	128	109	93
1083677	99	84	92
1083678	95	99	97
1083679	95	19	95
1083680	96	84	88
Blank	100	114	101
LCS	117	119	101
LCSD	120	119	103
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master
Batch number: 19171E94A

	Trifluorotoluene-P	Trifluorotoluene-F
1083669	87	78
1083670	88	78
1083671	88	80
1083672	85	77
1083673	88	78
1083674	89	84
1083675	89	79
1083676	88	80
1083677	89	77
1083678	88	77
1083679	88	77
1083680	89	79
1083681	89	79
Blank	88	80
LCS	85	94
Limits:	51-120	50-150

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master
Batch number: 19171E94A

	Trifluorotoluene-F
LCSD	97

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191710010A

	Orthoterphenyl	Capric Acid
1083669	101	0
1083670	84	0
1083671	105	0
1083672	106	0
1083673	92	0
1083674	96	0
1083675	102	0
1083676	103	0
Blank	89	0
LCS	95	0
LCSD	94	0

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191710011A

	Orthoterphenyl	Capric Acid
1083677	84	0
1083678	59	0
1083679	82	0
1083680	73	0
Blank	76	0
LCS	75	0
LCSD	78	0

Limits: 50-150 0-1

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191710015A

	Propene
1083669	50
1083670	59
Blank	106
LCS	104

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 10:59

Group Number: 2049603

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191710015A

Limits: 46-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191720005A

	Propene
1083671	66
1083672	104
1083673	69
1083674	96
1083675	73
1083676	71
1083677	112
1083678	87
1083679	95
1083680	97
Blank	105
LCS	112
LCSD	108

Limits: 46-135

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035236 Sample # 1083009-681

Instructions on reverse side correspond with circled numbers.

2649603 6/20/19

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																
Facility # <u>Edmonds Terminal NWENVPMG00143080</u>		WBS		Sediment <input type="checkbox"/>		Ground <input checked="" type="checkbox"/>		Surface <input type="checkbox"/>		Oil <input type="checkbox"/>		Air <input type="checkbox"/>		Total Number of Containers		BTEX-MTBE <input type="checkbox"/>		8021 <input checked="" type="checkbox"/>		8260 <input type="checkbox"/>		Naphth <input type="checkbox"/>		SCR #: _____												
Site Address <u>11720 Unoco Rd Edmonds, WA</u>				Potable <input type="checkbox"/>		NPDES <input type="checkbox"/>		Air <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Chevron PM <u>Kim Jolitz</u>		Lead Consultant <u>Arcadis</u>		Soil <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>				Composite <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Consultant Project Mgr. <u>Samuel Miles</u>				Grab <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Consultant Phone # _____				Composite <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Sampler <u>Alex Pink, Kelsey Franz, Kiley Zaubi</u>				Composite <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>		NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>		WA VPH <input type="checkbox"/>		WA EPH <input type="checkbox"/>		Lead <input type="checkbox"/>		Total <input type="checkbox"/>		Diss. <input type="checkbox"/>		Method <input type="checkbox"/>						
Sample Identification		Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE	8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	CPAHS 8270 SIM		Nitrate Nitrogen Sulfate		Methane RSK 176		Dissolved Manganese					
		Date	Time																																	
MW-8P		6/18/19	1130	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X			
MW-522		6/18/19	1330	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X			
MW-101		6/17/19	1005	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X		
MW-518		6/18/19	1000	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	
MW-139P		6/18/19	1345	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-514		6/18/19	1110	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-512		6/18/19	1230	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-511		6/18/19	1300	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-502		6/18/19	1010	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-503		6/18/19	1210	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
MW-504		6/18/19	1400	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
DUP-1		6/18/19	-	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
TRIP BLANK		-	-	X			X		11	X						X	X								X	X	X	X	X	X	X	X	X	X	X	X
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date				Time				Received by				Date				Time												
Standard 5 day 4 day				Kiley Zaubi				6/18/2019				1600				FedEx				6/18/2019				1600												
72 hour 48 hour 24 hour				_____				_____				_____				_____				_____				_____												
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Date				Time				Received by				Date				Time												
Type I - Full				UPS _____ FedEx <u>X</u> Other _____				_____				_____				_____				_____				_____												
Type VI (Raw Data)				Temperature Upon Receipt <u>13-21</u> °C				_____				_____				Custody Seals Intact? <u>Yes</u> No				_____				_____												

- Results in Dry Weight
- J value reporting needed
- Must meet lowest detection limits possible for 8260 compounds
- 8021 MTBE Confirmation
- Confirm MTBE + Naphthalene
- Confirm highest hit by 8260
- Confirm all hits by 8260
- Run _____ oxy's on highest hit
- Run _____ oxy's on all hits

* Use Standard SGC w/ NWTPH-Dx



Group Number(s):

2049603

Client: Arcadis

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 06/19/2019 10:10
 Number of Packages: 3 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	3
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 12:04 on 06/19/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	1.6	DT	Wet	Y	Bagged	N
2	DT42-03	2.1	DT	Wet	Y	Bagged	N
3	DT42-03	1.3	DT	Wet	Y	Bagged	N

General Comments: Received Metals Batch QC bottle for MW-139R.

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: July 17, 2019 11:27


Project: Edmonds Terminal

Account #: 11964
Group Number: 2049866
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-20R-190619 Grab Groundwater	06/19/2019 12:30	1085034
MW-126-190619 Grab Groundwater	06/19/2019 10:45	1085035
MW-143-190619 Grab Groundwater	06/19/2019 12:40	1085036
MW-505-190619 Grab Groundwater	06/19/2019 09:30	1085037
MW-506-190619 Grab Groundwater	06/19/2019 11:35	1085038
MW-507-190619 Grab Groundwater	06/19/2019 09:10	1085039
MW-509-190619 Grab Groundwater	06/19/2019 08:45	1085040
MW-509-190619 MS Grab Groundwater	06/19/2019 08:46	1085041
MW-509-190619 MSD Grab Groundwater	06/19/2019 08:46	1085042
MW-509-190619 DUP Grab Groundwater	06/19/2019 08:46	1085043
MW-519-190619 Grab Groundwater	06/19/2019 11:50	1085044
MW-520-190619 Grab Groundwater	06/19/2019 10:00	1085045
MW-521-190619 Grab Groundwater	06/19/2019 10:55	1085046
MW-533-190619 Grab Groundwater	06/19/2019 13:30	1085047
MW-535-190619 Grab Groundwater	06/19/2019 13:20	1085048
DUP-2-190619 Grab Groundwater	06/19/2019	1085049
DUP-3-190619 Grab Groundwater	06/19/2019	1085050
Trip Blank-190619 NA Water	06/19/2019	1085051

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-20R-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085034
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 12:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	120	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	746	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	1,350,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/22/2019 19:09	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 15:54	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-20R-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085034
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 12:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 15:54	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 15:53	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 18:00	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 01:49	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:50	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206B	06/21/2019 07:15	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206B	07/16/2019 17:59	Anna Campanella	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085035
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	14.9	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	38,800	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/22/2019 19:37	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 16:19	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085035
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10

Collection Date/Time: 06/19/2019 10:45

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 16:19	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 16:18	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 18:17	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 02:12	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:41	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 04:59	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	06/21/2019 04:59	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085036
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 12:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	5,100	150	250	50
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	3,740	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	4,400 J	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/22/2019 20:04	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 16:45	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085036
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10

Collection Date/Time: 06/19/2019 12:40

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 16:45	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 16:44	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 18:34	Johanna C Kennedy	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 02:34	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:48	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206B	06/21/2019 08:40	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206B	06/21/2019 08:40	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085037
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 09:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,100	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	11,000	24.4	50.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	483,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/22/2019 20:32	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 17:11	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085037
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 09:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 17:11	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 17:10	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 18:51	Johanna C Kennedy	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 02:57	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705009A	06/27/2019 13:55	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705009	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 04:24	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 17:41	Anna Campanella	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085038
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 11:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	16,000	300	500	100
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1,880	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	11,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/24/2019 18:39	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 20:35	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085038
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 11:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 20:35	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 20:34	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191720005A	06/26/2019 19:08	Johanna C Kennedy	100
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 03:19	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705004A	06/27/2019 05:51	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705004	06/24/2019 15:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 06:24	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	06/21/2019 06:24	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085039
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	78.1	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	172,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAP026	06/24/2019 19:07	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAP026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 21:00	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085039
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 09:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 21:00	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 20:59	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 11:58	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 03:42	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:31	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 04:07	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 17:23	Anna Campanella	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085040
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	30.5	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	320 J	250	500	5
00228	Sulfate	14808-79-8	1,740,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/21/2019 22:10	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 17:36	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085040
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:45

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 17:36	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 17:35	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 11:05	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 04:05	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705001A	06/25/2019 12:59	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705001	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 03:16	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 16:30	Anna Campanella	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085041
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:46

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.6	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	0.05	1
14244	Chrysene	218-01-9	0.8	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	24	0.5	2.0	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	200	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	78.3	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,500	250	500	5
00228	Sulfate	14808-79-8	3,860,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/21/2019 22:39	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 18:53	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085041
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:46

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 18:02	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 18:01	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	2	19177A94A	06/26/2019 18:52	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 11:23	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 01:04	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705001A	06/25/2019 13:05	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705001	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 03:50	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 17:06	Anna Campanella	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085042
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:46

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.7	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	1	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,400	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	24	0.5	2.0	1
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	190	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/21/2019 23:09	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 19:18	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 18:27	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 18:26	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	2	19177A94A	06/26/2019 19:17	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 11:40	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 01:26	Milfre Jimenez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085042
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:46

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPh-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-190619 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085043
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 08:46

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	30.6	4.9	10.0	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	310 J	250	500	5
00228	Sulfate	14808-79-8	1,710,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	191720705001A	06/25/2019 13:03	Janeyah Rivers-Hamilton	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705001	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 03:33	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 16:48	Anna Campanella	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085044
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 11:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.08 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.06 ug/l	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.5 ug/l	2.0 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	390	3.0 ug/l	5.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52 ug/l	120 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120 ug/l	290 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	744	4.9 ug/l	10.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	40,200	1,500 ug/l	5,000 ug/l	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/21/2019 23:38	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 21:26	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085044
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 11:50

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 21:26	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 21:25	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 12:16	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710040A	06/27/2019 04:27	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710040A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:39	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 06:07	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	06/21/2019 06:07	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-520-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085045
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	320	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	928	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	55,300	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 00:07	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 21:52	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-520-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085045
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 10:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 21:52	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 21:51	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 12:34	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 21:17	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:43	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 04:42	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	06/21/2019 04:42	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085046
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 10:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	38	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	358	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	470 J	250	500	5
00228	Sulfate	14808-79-8	47,900	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 00:37	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 22:18	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085046
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 10:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 22:18	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 22:17	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 12:51	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 21:40	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:46	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 05:16	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	06/21/2019 05:16	Drew M Gerhart	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085047
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 13:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	N.D.	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	330 J	250	500	5
00228	Sulfate	14808-79-8	2,090,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 01:06	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 22:43	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085047
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 13:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 22:43	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 22:42	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 13:09	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 22:03	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705004A	06/27/2019 05:53	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705004	06/24/2019 15:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206B	06/21/2019 09:15	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206B	07/16/2019 00:45	Ashlynn M Cornelius	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085048
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 13:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	285	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	370 J	250	500	5
00228	Sulfate	14808-79-8	1,840,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 01:35	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 23:09	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085048
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019 13:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 23:09	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 23:08	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 13:51	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 22:25	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705009A	06/27/2019 10:36	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705009	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206B	06/21/2019 08:58	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206B	07/16/2019 18:52	Anna Campanella	500

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085049
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	54	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	69.2	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	206,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 02:05	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 23:34	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085049
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 23:34	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 23:33	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 14:09	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 22:48	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:29	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 06:41	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 01:03	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085050
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	0.8 J	0.5 ug/l	2.0 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	92	3.0 ug/l	5.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	250 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	680	4.9 ug/l	10.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	1,420,000	150,000 ug/l	500,000 ug/l	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19171WAQ026	06/22/2019 02:34	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19171WAQ026	06/21/2019 09:00	Logan M Brosemer	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/27/2019 00:00	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-190619 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085050
ELLE Group #: 2049866
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/27/2019 00:00	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 23:59	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191780004A	06/27/2019 14:27	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191710041A	06/26/2019 23:11	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191710041A	06/21/2019 09:00	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191720705003A	06/26/2019 17:27	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191720705003	06/21/2019 17:00	Barbara A Kane	1
00368	Nitrate Nitrogen	EPA 300.0	1	19171963206A	06/21/2019 06:58	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	19171963206A	07/16/2019 01:21	Ashlynn M Cornelius	500

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank-190619 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1085051
ELLE Group #: 2049866
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 06/20/2019 11:10
Collection Date/Time: 06/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1
GC Volatiles						
02102	Benzene	SW-846 8021B 71-43-2	ug/l N.D.	ug/l 0.5	ug/l 2.0	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177A94A	06/26/2019 15:29	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177A94A	06/26/2019 15:29	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19177A94A	06/26/2019 15:28	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 19171WAP026	Sample number(s): 1085034-1085039		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19171WAQ026	Sample number(s): 1085040-1085042,1085044-1085050		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19177A94A	Sample number(s): 1085034-1085042,1085044-1085051		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 191720005A	Sample number(s): 1085034-1085038		
Methane	N.D.	3.0	5.0
Batch number: 191780004A	Sample number(s): 1085039-1085042,1085044-1085050		
Methane	N.D.	3.0	5.0
Batch number: 191710040A	Sample number(s): 1085034-1085042,1085044		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191710041A	Sample number(s): 1085045-1085050		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191720705001A	Sample number(s): 1085040-1085041,1085043		
Manganese	N.D.	4.9	10.0
Batch number: 191720705003A	Sample number(s): 1085034-1085036,1085039,1085044-1085046,1085049-1085050		
Manganese	N.D.	4.9	10.0
Batch number: 191720705004A	Sample number(s): 1085038,1085047		
Manganese	N.D.	4.9	10.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Method Blank (continued)

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 191750705009A	Sample number(s): 1085037,1085048		
Manganese	N.D.	4.9	10.0
Batch number: 19171963206A	Sample number(s): 1085035,1085037-1085041,1085043-1085046,1085049-1085050		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19171963206B	Sample number(s): 1085034,1085036,1085047-1085048		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19171WAP026	Sample number(s): 1085034-1085039								
Benzo(a)anthracene	1.00	0.960			96		59-143		
Benzo(a)pyrene	1.00	1.13			113		63-145		
Benzo(b)fluoranthene	1.00	1.16			116		63-152		
Benzo(k)fluoranthene	1.00	1.15			115		62-143		
Chrysene	1.00	0.908			91		59-135		
Dibenz(a,h)anthracene	1.00	1.22			122		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.22			122		56-151		
Batch number: 19171WAQ026	Sample number(s): 1085040-1085042,1085044-1085050								
Benzo(a)anthracene	1.00	1.04			104		59-143		
Benzo(a)pyrene	1.00	1.15			115		63-145		
Benzo(b)fluoranthene	1.00	1.10			110		63-152		
Benzo(k)fluoranthene	1.00	1.09			109		62-143		
Chrysene	1.00	0.952			95		59-135		
Dibenz(a,h)anthracene	1.00	1.18			118		56-145		
Indeno(1,2,3-cd)pyrene	1.00	1.24			124		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19177A94A	Sample number(s): 1085034-1085042,1085044-1085051								
Benzene	20	22.17			111		80-120		
NWTPH-Gx water C7-C12	1100	1367.66			124		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191720005A	Sample number(s): 1085034-1085038								
Methane	59.83	61.51	59.83	59.63	103	100	85-115	3	20

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 191780004A Methane	Sample number(s): 1085039-1085042,1085044-1085050 59.83	64.05			107		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191710040A DX DRO C12-C24 w/ SiGel	Sample number(s): 1085034-1085042,1085044 600.29	221.68			37		10-115		
Batch number: 191710041A DX DRO C12-C24 w/ SiGel	Sample number(s): 1085045-1085050 600.29	201.4	600.29	250.29	34	42	10-115	22*	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191720705001A Manganese	Sample number(s): 1085040-1085041,1085043 50	50.55	50	51.5	101	103	85-115	2	20
Batch number: 191720705003A Manganese	Sample number(s): 1085034-1085036,1085039,1085044-1085046,1085049-1085050 50	51.3			103		85-115		
Batch number: 191720705004A Manganese	Sample number(s): 1085038,1085047 50	49.99			100		85-115		
Batch number: 191750705009A Manganese	Sample number(s): 1085037,1085048 50	55.88			112		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19171963206A Nitrate Nitrogen Sulfate	Sample number(s): 1085035,1085037-1085041,1085043-1085046,1085049-1085050 750 7500	715.93 7605.09			95 101		90-110 90-110		
Batch number: 19171963206B Nitrate Nitrogen Sulfate	Sample number(s): 1085034,1085036,1085047-1085048 750 7500	715.93 7605.09			95 101		90-110 90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19171WAQ026	Sample number(s): 1085040-1085042,1085044-1085050 UNSPK: 1085040									
Benzo(a)anthracene	N.D.	1.02	0.856	1.03	0.931	84	91	59-143	8	30
Benzo(a)pyrene	N.D.	1.02	0.645	1.03	0.708	63	69	63-145	9	30
Benzo(b)fluoranthene	N.D.	1.02	0.851	1.03	0.944	83	92	63-152	10	30

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzo(k)fluoranthene	N.D.	1.02	0.816	1.03	0.911	80	89	62-143	11	30
Chrysene	N.D.	1.02	0.793	1.03	0.888	78	86	59-135	11	30
Dibenz(a,h)anthracene	N.D.	1.02	0.859	1.03	0.965	84	94	56-145	12	30
Indeno(1,2,3-cd)pyrene	N.D.	1.02	0.900	1.03	1.01	88	98	56-151	12	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19177A94A	Sample number(s): 1085034-1085042,1085044-1085051 UNSPK: 1085040									
Benzene	N.D.	20	23.99	20	24.06	120	120	80-120	0	30
NWTPH-Gx water C7-C12	N.D.	1100	1484.69	1100	1436.94	135*	131	64-131	3	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191780004A	Sample number(s): 1085039-1085042,1085044-1085050 UNSPK: 1085040									
Methane	N.D.	59.83	59.18	59.83	59.13	99	99	73-125	0	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191710040A	Sample number(s): 1085034-1085042,1085044 UNSPK: 1085040									
DX DRO C12-C24 w/ SiGel	N.D.	610.05	198.8	620.13	185.55	33	30	30-115	7	20
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191720705001A	Sample number(s): 1085040-1085041,1085043 UNSPK: 1085040									
Manganese	30.54	50	78.28			95		70-130		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19171963206A	Sample number(s): 1085035,1085037-1085041,1085043-1085046,1085049-1085050 UNSPK: 1085040									
Nitrate Nitrogen	316.9	2500	2538.4			89*		90-110		
Sulfate	1735824.47	2500000	3864640.37			85*		90-110		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19171963206B	Sample number(s): 1085034,1085036,1085047-1085048 UNSPK: 1085034									
Nitrate Nitrogen	N.D.	250000	246807.87			99		90-110		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Sulfate	1352262.4	2500000	3690446.21			94		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
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*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 191720705001A Manganese	Sample number(s): 1085040-1085041,1085043 BKG: 1085040 30.54	30.58	0 (1)	20
Batch number: 19171963206A Nitrate Nitrogen Sulfate	Sample number(s): 1085035,1085037-1085041,1085043-1085046,1085049-1085050 BKG: 1085040 316.9 1735824.47	311.59 1705874.16	2 (1) 2 (1)	15 15
Batch number: 19171963206B Nitrate Nitrogen Sulfate	Sample number(s): 1085034,1085036,1085047-1085048 BKG: 1085034 N.D. 1352262.4	N.D. 1333200.7	0 (1) 1 (1)	15 15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19171WAP026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1085034	88	24	74
1085035	96	96	71
1085036	89	98	90
1085037	90	50	66
1085038	87	73	74
1085039	101	93	75
Blank	98	110	92
LCS	92	111	85
Limits:	40-132	18-129	33-122

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19171WAQ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1085040	96	54	81
1085041	94	65	94
1085042	99	71	90
1085044	87	74	88
1085045	96	57	76
1085046	89	68	77
1085047	102	95	103

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19171WAQ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1085048	99	98	96
1085049	121	104	101
1085050	93	26	90
Blank	95	113	86
LCS	95	118	100
MS	94	65	94
MSD	99	71	90
Limits:	40-132	18-129	33-122

Analysis Name: Method 8021 Water Master

Batch number: 19177A94A

	Trifluorotoluene-P	Trifluorotoluene-F
1085034	89	74
1085035	89	73
1085036	88	74
1085037	88	75
1085038	88	79
1085039	89	75
1085040	89	76
1085041	86	92
1085042	86	89
1085044	89	79
1085045	89	74
1085046	88	83
1085047	89	74
1085048	89	74
1085049	89	73
1085050	89	76
1085051	89	74
Blank	89	74
LCS	86	92
MS	86	92
MSD	86	89
Limits:	51-120	50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 191710040A

	Orthoterphenyl	Capric Acid
1085034	75	0
1085035	80	0

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191710040A

	Orthoterphenyl	Capric Acid
1085036	70	0
1085037	74	0
1085038	69	0
1085039	79	0
1085040	76	0
1085041	69	0
1085042	62	0
1085044	77	0
Blank	82	0
LCS	70	0
MS	69	0
MSD	62	0

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191710041A

	Orthoterphenyl	Capric Acid
1085045	80	0
1085046	76	0
1085047	79	0
1085048	76	0
1085049	73	0
1085050	68	0
Blank	77	0
LCS	66	0
LCSD	75	0

Limits: 50-150 0-1

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191720005A

	Propene
1085034	97
1085035	89
1085036	105
1085037	102
1085038	111
Blank	105
LCS	112
LCSD	108

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/17/2019 11:27

Group Number: 2049866

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191720005A

Limits: 46-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191780004A

	Propene
1085039	88
1085040	103
1085041	95
1085042	97
1085044	93
1085045	90
1085046	93
1085047	103
1085048	94
1085049	90
1085050	100
Blank	107
LCS	106
MS	95
MSD	97
Limits:	46-135

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

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(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035236 Sample # 085034-51

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks																																																									
Facility # WBS Edmonds Terminal NWENVPM600143080				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Total Number of Containers				<input type="checkbox"/> BTEX+MTBE 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth 8260 full scan Oxygenates NWTPH-GX NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method Dissolved Manganese Nitrate, Nitrogen, Sulfate Methane PSK 175 CPAHS 8270 SIM										SCR #: _____																																																									
Site Address 11720 Unoco Rd, Edmonds WA																		Chevron PM Lead Consultant Kim Jolitz Arcadis		Consultant/Office 1100 Olive Way, Suite 800, Seattle WA 98101		Consultant Project Mgr. Samuel Miles		Consultant Phone #		<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy's on highest hit <input type="checkbox"/> Run ___ oxy's on all hits																																																	
Sampler Kelsey Franz, Alex Pink, Kiley Zamb				<input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				8260 full scan Oxygenates NWTPH-GX NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method Dissolved Manganese Nitrate, Nitrogen, Sulfate Methane PSK 175 CPAHS 8270 SIM										* use standard SGC																																																									
2 Sample Identification <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sample ID</th> <th colspan="2">Collected</th> <th rowspan="2">Grab</th> <th rowspan="2">Composite</th> </tr> <tr> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr><td>MW-20R</td><td>6/19/19</td><td>1230</td><td>X</td><td></td></tr> <tr><td>MW-126</td><td>6/19/19</td><td>1045</td><td>X</td><td></td></tr> <tr><td>MW-143</td><td>6/19/19</td><td>1240</td><td>X</td><td></td></tr> <tr><td>MW-505</td><td>6/19/19</td><td>0930</td><td>X</td><td></td></tr> <tr><td>MW-506</td><td>6/19/19</td><td>1135</td><td>X</td><td></td></tr> <tr><td>MW-507</td><td>6/19/19</td><td>0910</td><td>X</td><td></td></tr> <tr><td>MW-509</td><td>6/19/19</td><td>0845</td><td>X</td><td></td></tr> <tr><td>MW-518 MW-519</td><td>6/19/19</td><td>1150</td><td>X</td><td></td></tr> <tr><td>MW-520</td><td>6/19/19</td><td>1000</td><td>X</td><td></td></tr> <tr><td>MW-521</td><td>6/19/19</td><td>1055</td><td>X</td><td></td></tr> <tr><td>MW-533</td><td>6/19/19</td><td>1330</td><td>X</td><td></td></tr> <tr><td>MW-535</td><td>6/19/19</td><td>1320</td><td>X</td><td></td></tr> <tr><td>MW-535 - MS/MSD</td><td>6/19/19</td><td>0846</td><td>X</td><td></td></tr> </tbody> </table>																				Sample ID	Collected		Grab	Composite	Date	Time	MW-20R	6/19/19	1230	X		MW-126	6/19/19	1045	X		MW-143	6/19/19	1240	X		MW-505	6/19/19	0930	X		MW-506	6/19/19	1135	X		MW-507	6/19/19	0910	X		MW-509	6/19/19	0845	X		MW-518 MW-519	6/19/19	1150	X		MW-520	6/19/19	1000	X		MW-521	6/19/19	1055	X
Sample ID	Collected		Grab	Composite																																																																							
	Date	Time																																																																									
MW-20R	6/19/19	1230	X																																																																								
MW-126	6/19/19	1045	X																																																																								
MW-143	6/19/19	1240	X																																																																								
MW-505	6/19/19	0930	X																																																																								
MW-506	6/19/19	1135	X																																																																								
MW-507	6/19/19	0910	X																																																																								
MW-509	6/19/19	0845	X																																																																								
MW-518 MW-519	6/19/19	1150	X																																																																								
MW-520	6/19/19	1000	X																																																																								
MW-521	6/19/19	1055	X																																																																								
MW-533	6/19/19	1330	X																																																																								
MW-535	6/19/19	1320	X																																																																								
MW-535 - MS/MSD	6/19/19	0846	X																																																																								
7 Turnaround Time Requested (TAT) (please circle) Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by: Date: 6/19/19 Time: 1600 Received by: Fed Ex Date: 6/19/19 Time: 1600				9																																																																			
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FL_05 (default) Other:				Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt 13-3,2 °C Custody Seals Intact? (Yes) No																																																																			

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be given to the SeaTag Courier. The pink copy should be retained by the client.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # ~~2035230~~ Sample # 1085034-51

Instructions on reverse side correspond with circled numbers.

2049866 Missy 6/20/19 (5)

SCR #: _____

1 Client Information				4 Matrix				5 Analyses Requested											6 Remarks																																
Facility # Edmonds Terminal NWENVPMG00148080	WBS			Soil <input type="checkbox"/>	Water	Oil	Total Number of Containers	BTX <input type="checkbox"/>	8260	8021 <input checked="" type="checkbox"/>	8260	Naphth <input type="checkbox"/>	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/>	WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/>	Total <input type="checkbox"/>	Diss. <input type="checkbox"/>	Method	Dissolved Manganese	Nitrogen, Nitrate, Sulfate	Methane PSK 175	CPAHS 8270 SIM	9																								
Site Address 11720 Unoco Rd, Edmonds WA	Chevron PM Kim Jolitz	Lead Consultant Arcadis	Sediment <input type="checkbox"/>																									Ground <input checked="" type="checkbox"/>	Surface <input type="checkbox"/>	260 full scan	8021	8260	8021	8260	Naphth	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method							
Consultant/Office 1100 Olive Way, Suite 800, Seattle WA 98101	Consultant Project Mgr. Samuel Miles	Consultant Phone #	Potable <input type="checkbox"/>																									NPDES <input type="checkbox"/>	Air <input type="checkbox"/>																						
Sampler Kelsy Franz, Alex Pink, Kiley Zaubi	Collected Date 6/19/19	Time ---	Grab <input checked="" type="checkbox"/>																									Composite <input type="checkbox"/>																							
2 Sample Identification																																																			
Dup-2		6/19/19	---	<input checked="" type="checkbox"/>			1	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	*USE Standard SGC																									
Dup-3		6/19/19	---	<input checked="" type="checkbox"/>			1	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
Trip Blank		6/19/19	---	<input checked="" type="checkbox"/>			2	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by		Date		Time		Received by		Date		Time		Received by		Date		Time						9																									
Standard 5 day 4 day				Kelsy Franz		6/19/19		1600		FedEx		6/19/19		1600																																					
72 hour 48 hour 24 hour																																																			
8 Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier:				Received by				Date		Time																																					
Type I - Full		CVX-RTBU-FL_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____				[Signature]				6/20/19		1110																																					
Type VI (Raw Data)		Other:		Temperature Upon Receipt				Custody Seals Intact?																																											



Client: Arcadis

Delivery and Receipt Information

Delivery Method: Fed-Ex 3 Arrival Timestamp: 06/20/2019 11:10
 Number of Packages: 4 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCI
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 13:07 on 06/20/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	2.1	DT	Wet	Y	Bagged	N
2	DT42-03	1.3	DT	Wet	Y	Bagged	N
3	DT42-03	1.9	DT	Wet	Y	Bagged	N
4	DT42-03	3.2	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
MW-506	6/19/2019 10:35	

General Comments: Received Metals Batch QC bottles for MW-505 and MW-535

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: July 03, 2019 12:52


Project: Edmonds Terminal

Account #: 11964
Group Number: 2050078
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
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Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-104-W-190620 Grab Groundwater	06/20/2019 09:15	1086061
MW-104-W-190620MS Grab Groundwater	06/20/2019 09:16	1086062
MW-104-W-190620MSD Grab Groundwater	06/20/2019 09:17	1086063
MW-104-W-190620DUP Grab Groundwater	06/20/2019 09:15	1086064
MW-531-W-190620 Grab Groundwater	06/20/2019 09:30	1086065
MW-532-W-190620 Grab Groundwater	06/20/2019 09:35	1086066
MW-525-W-190620 Grab Groundwater	06/20/2019 10:35	1086067
MW-ER-W-190620 Grab Groundwater	06/20/2019 11:15	1086068
MW-129R-W-190620 Grab Groundwater	06/20/2019 11:30	1086069
MW-526-W-190620 Grab Groundwater	06/20/2019 12:00	1086070
MW-534-W-190620 Grab Groundwater	06/20/2019 12:45	1086071
LM-2-W-190620 Grab Groundwater	06/20/2019 14:10	1086072
DUP-4-WD-190620 Grab Groundwater	06/20/2019	1086073
QA-T-190620 NA Water	06/20/2019	1086074

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-104-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086061
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	64 J	19	250	1
GC Volatiles						
		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	310	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	445	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	7,200	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 00:59	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 18:33	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086061
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10

Collection Date/Time: 06/20/2019 09:15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 18:33	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 18:32	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 10:13	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 07:05	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705003A	06/27/2019 16:20	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705003	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 21:30	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 21:30	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086062
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:16

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.6	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.4	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.5	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.5	0.01	0.05	1
14244	Chrysene	218-01-9	0.6	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.3	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,600	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	25	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	440 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	290	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	491	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	3,100	250	500	5
00228	Sulfate	14808-79-8	34,500	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 01:27	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 19:49	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086062
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10

Collection Date/Time: 06/20/2019 09:16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 18:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 18:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19177B94A	06/27/2019 19:48	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 10:28	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 06:20	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705003A	06/27/2019 16:31	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705003	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 22:05	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 22:05	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086063
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:17

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.8	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	1	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.8	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.8	0.01	0.05	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,600	19	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	25	0.5	2.0	1
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	420 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	270	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 01:55	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 20:15	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 19:24	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 19:23	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	2	19177B94A	06/27/2019 20:14	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 10:44	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 06:43	Milfre Jimenez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086063
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:17

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPh-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-190620DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086064
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	452	4.9	10.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	7,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	191750705003A	06/27/2019 16:27	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705003	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 21:48	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 21:48	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086065
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,500	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	754	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,100	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 02:22	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 15:34	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086065
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 15:34	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 15:33	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 14:41	Johanna C Kennedy	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 07:28	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:25	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 22:22	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 22:22	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086066
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	120	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	438	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	64,200	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 02:50	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 15:59	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086066
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 09:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 15:59	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 15:58	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 11:14	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 07:50	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705004A	06/27/2019 15:07	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705004	06/25/2019 08:03	Denise L Trimby	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 22:39	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 22:39	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086067
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 10:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	290	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	4.7	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	150	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	6,230	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	519,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 03:17	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 16:25	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086067
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 10:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 16:25	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 16:24	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 11:30	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 08:13	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:02	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 22:56	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/25/2019 18:00	Ashlynn M Cornelius	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086068
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 11:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.06 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.08 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.06 ug/l	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	460	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.5 ug/l	2.0 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	14,000	300 ug/l	500 ug/l	100
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Petroleum ECY 97-602 NWTPH-Dx						
Hydrocarbons w/Si modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	100 J	54 ug/l	120 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120 ug/l	300 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	15,700	97.6 ug/l	200 ug/l	20
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	3,400 J	1,500 ug/l	5,000 ug/l	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 03:45	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086068
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 11:15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 16:50	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 16:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 16:49	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 14:57	Johanna C Kennedy	100
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 08:36	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:04	Choon Y Tian	20
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 23:13	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 23:13	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086069
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 11:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM ug/l ug/l ug/l						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	0.02 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx ug/l ug/l ug/l						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles SW-846 8021B ug/l ug/l ug/l						
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous RSKSOP-175 modified ug/l ug/l ug/l						
07105	Methane	74-82-8	1,000	15	25	5
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified ug/l ug/l ug/l						
12917	DX DRO C12-C24 w/ SiGel	n.a.	240	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved EPA 200.8 rev 5.4 ug/l ug/l ug/l						
06037	Manganese	7439-96-5	7,810	4.9	10.0	1
Wet Chemistry EPA 300.0 ug/l ug/l ug/l						
00368	Nitrate Nitrogen	14797-55-8	410 J	250	500	5
00228	Sulfate	14808-79-8	66,200	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 04:12	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086069
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10

Collection Date/Time: 06/20/2019 11:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 17:16	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 17:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 17:15	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 15:14	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 08:58	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:13	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/21/2019 23:30	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/21/2019 23:30	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086070
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 12:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	640	19 ug/l	250 ug/l	1
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	0.5 ug/l	2.0 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	8.4	3.0 ug/l	5.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	150	46 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	260 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	494	4.9 ug/l	10.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	340 J	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	43,200	1,500 ug/l	5,000 ug/l	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 04:40	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 17:42	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086070
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 12:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 17:42	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 17:41	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/24/2019 12:31	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 09:21	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/22/2019 00:21	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/22/2019 00:21	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086071
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,500	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	15,300	24.4	50.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	1,040,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 05:07	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 18:07	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086071
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 12:45

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 18:07	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 18:06	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 15:31	Johanna C Kennedy	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 09:43	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705009A	06/27/2019 13:48	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705009	06/25/2019 07:05	Annamaria Kuhns	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/22/2019 00:38	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/25/2019 18:17	Ashlynn M Cornelius	500

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086072
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 14:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	190 ug/l	2,500 ug/l	10
Reporting limits were raised due to sample foaming.						
GC Volatiles SW-846 8021B						
02102	Benzene	71-43-2	N.D.	5.0 ug/l	20 ug/l	10
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	860	15 ug/l	25 ug/l	5
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	260 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	107	4.9 ug/l	10.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	155,000	15,000 ug/l	50,000 ug/l	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 05:35	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-W-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086072
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019 14:10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94B	07/01/2019 15:43	Jeremy C Giffin	10
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94B	07/01/2019 15:43	Jeremy C Giffin	10
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94B	07/01/2019 15:42	Jeremy C Giffin	10
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 15:48	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 10:06	Mifre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/22/2019 00:55	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/25/2019 18:34	Ashlynn M Cornelius	50

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086073
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Volatiles						
SW-846 8021B			ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,400	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	740	4.9	10.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	30,300	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19177WAF026	06/28/2019 08:03	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19177WAF026	06/27/2019 11:30	Jeancarlo Morales	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 21:53	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-190620 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086073
ELLE Group #: 2050078
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 21:53	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 21:52	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	191750003A	06/27/2019 16:05	Johanna C Kennedy	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	191750033A	06/27/2019 10:28	Milfre Jimenez	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	191750033A	06/25/2019 09:30	Logan M Brosemer	1
06037	Manganese	EPA 200.8 rev 5.4	1	191750705008A	06/27/2019 05:16	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	191750705008	06/25/2019 15:10	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19172520113A	06/22/2019 01:12	Ashlynn M Cornelius	5
00228	Sulfate	EPA 300.0	1	19172520113A	06/22/2019 01:12	Ashlynn M Cornelius	5

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190620 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: WW 1086074
ELLE Group #: 2050078
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 06/21/2019 10:10
Collection Date/Time: 06/20/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles						
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Volatiles						
	SW-846 8021B		ug/l	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	2.0	1
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19177B94A	06/27/2019 15:08	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	19177B94A	06/27/2019 15:08	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	19177B94A	06/27/2019 15:07	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19177WAF026	Sample number(s): 1086061-1086063,1086065-1086073		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19177B94A	Sample number(s): 1086061-1086063,1086065-1086071,1086073-1086074		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19177B94B	Sample number(s): 1086072		
Benzene	N.D.	0.03	1.0
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 191750003A	Sample number(s): 1086061-1086063,1086065-1086073		
Methane	N.D.	3.0	5.0
Batch number: 191750033A	Sample number(s): 1086061-1086063,1086065-1086073		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 191750705003A	Sample number(s): 1086061-1086062,1086064		
Manganese	N.D.	4.9	10.0
Batch number: 191750705004A	Sample number(s): 1086066		
Manganese	N.D.	4.9	10.0
Batch number: 191750705008A	Sample number(s): 1086065,1086067-1086070,1086072-1086073		
Manganese	N.D.	4.9	10.0
Batch number: 191750705009A	Sample number(s): 1086071		
Manganese	N.D.	4.9	10.0
Batch number: 19172520113A	Sample number(s): 1086061-1086062,1086064-1086073		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19177WAF026	Sample number(s): 1086061-1086063,1086065-1086073								
Benzo(a)anthracene	1.00	0.783			78		59-143		
Benzo(a)pyrene	1.00	1.00			100		63-145		
Benzo(b)fluoranthene	1.00	1.04			104		63-152		
Benzo(k)fluoranthene	1.00	1.06			106		62-143		
Chrysene	1.00	0.813			81		59-135		
Dibenz(a,h)anthracene	1.00	0.857			86		56-145		
Indeno(1,2,3-cd)pyrene	1.00	0.843			84		56-151		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19177B94A	Sample number(s): 1086061-1086063,1086065-1086071,1086073-1086074								
Benzene	20	22.64			113		80-120		
NWTPH-Gx water C7-C12	1100	1325.97			121		64-131		
Batch number: 19177B94B	Sample number(s): 1086072								
Benzene	20	22.64			113		80-120		
NWTPH-Gx water C7-C12	1100	1325.97			121		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750003A	Sample number(s): 1086061-1086063,1086065-1086073								
Methane	59.83	58.45			98		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750033A	Sample number(s): 1086061-1086063,1086065-1086073								
DX DRO C12-C24 w/ SiGel	600.29	210.66			35		10-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750705003A	Sample number(s): 1086061-1086062,1086064								
Manganese	50	50.25			100		85-115		
Batch number: 191750705004A	Sample number(s): 1086066								
Manganese	50	51.69			103		85-115		
Batch number: 191750705008A	Sample number(s): 1086065,1086067-1086070,1086072-1086073								
Manganese	50	50.96			102		85-115		
Batch number: 191750705009A	Sample number(s): 1086071								
Manganese	50	55.88			112		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19172520113A	Sample number(s): 1086061-1086062,1086064-1086073								
Nitrate Nitrogen	750	782.29			104		90-110		
Sulfate	7500	7713.46			103		90-110		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19177WAF026	Sample number(s): 1086061-1086063,1086065-1086073 UNSPK: 1086061									
Benzo(a)anthracene	N.D.	1.05	0.617	1.07	0.907	58*	85	59-143	38*	30
Benzo(a)pyrene	N.D.	1.05	0.427	1.07	0.831	40*	78	63-145	64*	30
Benzo(b)fluoranthene	N.D.	1.05	0.505	1.07	1.05	48*	99	63-152	70*	30
Benzo(k)fluoranthene	N.D.	1.05	0.479	1.07	0.999	45*	94	62-143	70*	30
Chrysene	N.D.	1.05	0.613	1.07	0.868	58*	81	59-135	34*	30
Dibenz(a,h)anthracene	N.D.	1.05	0.276	1.07	0.795	26*	74	56-145	97*	30
Indeno(1,2,3-cd)pyrene	N.D.	1.05	0.281	1.07	0.784	27*	73	56-151	94*	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19177B94A	Sample number(s): 1086061-1086063,1086065-1086071,1086073-1086074 UNSPK: 1086061									
Benzene	N.D.	20	24.97	20	25.22	125*	126*	80-120	1	30
NWTPH-Gx water C7-C12	64.46	1100	1571.72	1100	1579.67	137*	138*	64-131	1	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19177B94B	Sample number(s): 1086072 UNSPK: 1086061									
Benzene	N.D.	20	24.97	20	25.22	125*	126*	80-120	1	30
NWTPH-Gx water C7-C12	64.46	1100	1571.72	1100	1579.67	137*	138*	64-131	1	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750003A	Sample number(s): 1086061-1086063,1086065-1086073 UNSPK: 1086061									
Methane	311.19	59.83	435.28	59.83	415.46	207 (2)	174 (2)	73-125	5	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750033A	Sample number(s): 1086061-1086063,1086065-1086073 UNSPK: 1086061									
DX DRO C12-C24 w/ SiGel	N.D.	617.58	291.81	625.3	265.81	47	43	30-115	9	20
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 191750705003A	Sample number(s): 1086061-1086062,1086064 UNSPK: 1086061									
Manganese	444.51	50	490.75			92 (2)		70-130		
	ug/l	ug/l	ug/l							
Batch number: 191750705004A	Sample number(s): 1086066 UNSPK: 1086066									
Manganese	438.34	50	469.49			62 (2)		70-130		
	ug/l	ug/l	ug/l							
Batch number: 191750705009A	Sample number(s): 1086071 UNSPK: 1086071									
Manganese	15348.92	50	13412.32			-3873 (2)		70-130		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19172520113A	Sample number(s): 1086061-1086062,1086064-1086073 UNSPK: 1086061									
Nitrate Nitrogen	N.D.	2500	3065.58			123*		90-110		
Sulfate	7242.5	25000	34528.14			109		90-110		
	ug/l	ug/l	ug/l							

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 191750705003A Manganese	Sample number(s): 1086061-1086062,1086064 BKG: 1086061			
	444.51	451.64	2	20
Batch number: 191750705004A Manganese	Sample number(s): 1086066 BKG: 1086066			
	438.34	442.7	1	20
Batch number: 191750705009A Manganese	Sample number(s): 1086071 BKG: 1086071			
	15348.92	12592.74	20	20
	ug/l	ug/l		
Batch number: 19172520113A Nitrate Nitrogen	Sample number(s): 1086061-1086062,1086064-1086073 BKG: 1086061			
	N.D.	N.D.	0 (1)	15
Sulfate	7242.5	7036.43	3 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19177WAF026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1086061	82	65	81
1086062	70	40	76
1086063	76	81	87
1086065	86	59	82
1086066	84	68	74
1086067	69	83	75
1086068	83	94	82
1086069	77	101	81
1086070	68	85	93
1086071	89	49	80
1086072	90	69	73
1086073	84	63	68
Blank	92	102	90
LCS	81	102	81
MS	70	40	76
MSD	76	81	87
Limits:	40-132	18-129	33-122

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master
Batch number: 19177B94A

	Trifluorotoluene-P	Trifluorotoluene-F
1086061	87	72
1086062	85	90
1086063	86	91
1086065	89	86
1086066	88	83
1086067	92	84
1086068	87	82
1086069	88	75
1086070	86	75
1086071	86	72
1086073	89	68
1086074	88	83
Blank	88	78
LCS	89	95
MS	85	90
MSD	86	91

Limits: 51-120 50-150

Analysis Name: Method 8021 Water Master
Batch number: 19177B94B

	Trifluorotoluene-P	Trifluorotoluene-F
1086072	87	78
Blank	87	78
LCS	89	95
MS	85	90
MSD	86	91

Limits: 51-120 50-150

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191750003A

	Propene
1086061	52
1086062	62
1086063	65
1086065	98
1086066	58
1086067	56
1086068	111
1086069	85
1086070	63

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 07/03/2019 12:52

Group Number: 2050078

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 191750003A

	Propene
1086071	107
1086072	91
1086073	95
Blank	75
LCS	78
MS	62
MSD	65

Limits: 46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 191750033A

	Orthoterphenyl	Capric Acid
1086061	73	0
1086062	71	0
1086063	68	0
1086065	59	0
1086066	71	0
1086067	61	0
1086068	73	0
1086069	73	0
1086070	53	0
1086071	72	0
1086072	50	0
1086073	70	0
Blank	73	0
LCS	64	0
MS	71	0
MSD	68	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2035230 Sample # 1086061-74

Instructions on reverse side correspond with circled numbers.

2050078

1 Client Information				4 Matrix			5 Analyses Requested										6 Remarks											
Facility # <u>WBS</u> Site Address <u>Edmonds Terminal NWENVPM 600148080</u> <u>11720 Uno co Rd Edmonds, WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant Consultant/Office <u>Arcadis</u> <u>1100 Olive Way, Suite 800, Seattle WA</u> Consultant Project Mgr. <u>Samuel Miles</u> Consultant Phone # _____				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Potable Ground <input type="checkbox"/> NPDES Surface <input type="checkbox"/> Oil Air			Total Number of Containers _____ BTEX+MTBE <input type="checkbox"/> 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth 8260 full scan _____ Oxygenates _____ NWTPH-GX _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ Dissolved Manganese Nitrogen Nitrate Sulfate Methane RSK 175 CPAHS 8270 SIM										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits											
Sampler <u>Alex Pink, Kelsey Franz, Kiley Zawbi</u>				<input type="checkbox"/> Composite																								
2 Sample Identification		3 Collected		Grab	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE	8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH-GX	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method					
Date	Time	Date	Time																									
MW-104	6-20-19	0915	X		X		11	X						X	X									X	X	X	X	*use standard SGC
MW-104-MS/MSD	6-20-19	0915	X		X		22	X						X	X									X	X	X	X	
MW-531	6-20-19	0930	X		X		11	X						X	X									X	X	X	X	
MW-532	6-20-19	0935	X		X		11	X						X	X									X	X	X	X	
MW-525	6-20-19	1035	X		X		11	X						X	X									X	X	X	X	
MW-ER	6-20-19	1115	X		X		11	X						X	X									X	X	X	X	
MW-129R	6-20-19	1130	X		X		11	X						X	X									X	X	X	X	
MW-526	6-20-19	1200	X		X		11	X						X	X									X	X	X	X	
MW-534	6-20-19	1245	X		X		11	X						X	X									X	X	X	X	
LM-2	6-20-19	1410	X		X		11	X						X	X									X	X	X	X	
DUP-4	6-20-19	—	X		X		11	X						X	X									X	X	X	X	
TRIP BLANK	—	—	X		X		2	X						X														
7 Turnaround Time Requested (TAT) (please circle) (Standard) 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____ Date <u>6-20-19</u> Time _____ Received by <u>Fedex</u> Date <u>6-20-19</u> Time _____													9											
8 Data Package (circle if required) Type I - Full _____ Type VI (Raw Data) _____				Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____ Temperature Upon Receipt <u>1.7-2.0</u>			Received by _____ Date <u>6-21-19</u> Time <u>10:10</u> Custody Seals Intact? <u>Yes</u> No																					



Client: EDMONDS TERMINAL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 06/21/2019 10:10
 Number of Packages: 3 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCL
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jessenia Colon Martinez (30856) at 11:11 on 06/21/2019

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.7	DT	Wet	Y	Bagged	N
2	DT131	1.8	DT	Wet	Y	Bagged	N
3	DT131	2.2	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: October 08, 2019 16:03

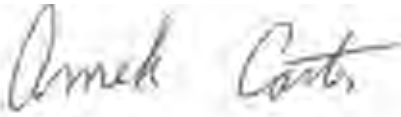
Project: Edmonds Terminal

Account #: 11964
Group Number: 2064735
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
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Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink
Attn: Daniel Gilbert

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/>. Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-104-W-190917 Grab Groundwater	09/17/2019 12:20	1153927
MW-129R-W-190917 Grab Groundwater	09/17/2019 10:00	1153928
MW-522-W-190917 Grab Groundwater	09/17/2019 10:50	1153929
MW-525-W-190917 Grab Groundwater	09/17/2019 10:10	1153930
MW-526-W-190917 Grab Groundwater	09/17/2019 12:10	1153931
MW-530-W-190917 Grab Groundwater	09/17/2019 13:50	1153932
MW-531-W-190917 Grab Groundwater	09/17/2019 12:15	1153933
MW-532-W-190917 Grab Groundwater	09/17/2019 10:55	1153934
MW-533-W-190917 Grab Groundwater	09/17/2019 13:20	1153935
MW-534-W-190917 Grab Groundwater	09/17/2019 12:45	1153936
MW-535-W-190917 Grab Groundwater	09/17/2019 13:10	1153937
MW-ER-W-190917 Grab Groundwater	09/17/2019 11:20	1153938
LM-2-W-190917 Grab Groundwater	09/17/2019 13:40	1153939
DUP-1-WD-190917 Grab Groundwater	09/17/2019	1153940
QA-T-190917 NA Water	09/17/2019	1153941

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-104-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153927
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.

GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	59 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 21:57	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 21:56	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 13:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 22:59	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 22:58	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 17:24	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153928
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	56 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 22:21	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 22:20	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 13:43	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 23:24	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 23:23	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 17:47	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153929
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 10:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	20 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	61	140	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	140	340	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 22:45	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 22:44	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 14:14	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 00:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 00:15	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 18:10	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153930
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 10:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	0.9 J	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	120 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 23:09	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 23:08	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 14:44	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 00:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 00:40	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 18:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153931
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 12:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	410	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 15:41	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 15:40	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 15:15	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 01:07	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 01:06	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 18:56	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-530-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153932
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 13:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 16:03	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 16:02	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 15:46	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 01:33	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 01:32	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 19:18	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153933
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 12:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	23 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 16:25	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 16:24	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 16:16	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 01:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 01:57	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 19:41	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153934
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 10:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 16:47	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 16:46	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 16:47	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 02:24	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 02:23	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 20:04	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153935
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 13:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 17:09	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 17:08	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 17:18	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 02:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 02:49	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 21:05	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153936
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	29 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 17:31	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 17:30	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 17:48	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 03:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 03:15	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630026A	09/27/2019 21:28	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630026A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153937
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 13:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 17:53	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 17:52	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 18:19	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 03:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 03:40	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 17:01	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153938
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 11:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	0.01 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	690	19	250	1
The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	140	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 18:15	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 18:14	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 23:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 04:08	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 04:07	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 17:24	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153939
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 13:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	190	2,500	10
Reporting limits were raised due to sample foaming.						
Due to the need for reanalysis of the sample, the requirement for no headspace was not met. This analysis was performed from a previously opened container with headspace.						
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. A reextraction was unable to be performed within the hold time.						

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 18:37	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 18:36	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/24/2019 23:32	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19267B20A	09/25/2019 06:58	Jeremy C Giffin	10
01146	GC VOA Water Prep	SW-846 5030C	1	19267B20A	09/25/2019 06:57	Jeremy C Giffin	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 17:47	Bridget Kovacs	1

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-W-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153939
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019 13:40

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPh-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-190917 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153940
ELLE Group #: 2064735
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.01 J	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.04 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.03 J	0.01	0.05	1
14244	Chrysene	218-01-9	0.03 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.03 J	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.03 J	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	24 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 18:59	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 18:58	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19266WAB026	09/25/2019 00:02	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19266WAB026	09/23/2019 16:00	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/24/2019 04:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/24/2019 04:54	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 18:10	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190917 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1153941
ELLE Group #: 2064735
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:15
Collection Date/Time: 09/17/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

The requirement for no headspace at the time of analysis was not met. The container used for the testing had headspace at the time of analysis.

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 14:44	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 14:43	Alexander D Sechrist	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 19:33	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 19:32	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:03

Group Number: 2064735

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: D192662AA Benzene	Sample number(s): 1153927-1153930,1153941 N.D.	0.2	1
Batch number: F192672AA Benzene	Sample number(s): 1153931-1153940 N.D.	0.2	1
Batch number: 19266WAB026 Benzo(a)anthracene	Sample number(s): 1153927-1153940 N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19266A94A NWTPH-Gx water C7-C12	Sample number(s): 1153927-1153938,1153940-1153941 N.D.	19	250
Batch number: 19267B20A NWTPH-Gx water C7-C12	Sample number(s): 1153939 N.D.	19	250
Batch number: 192630026A DX DRO C12-C24 w/ SiGel	Sample number(s): 1153927-1153936 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 192630027A DX DRO C12-C24 w/ SiGel	Sample number(s): 1153937-1153940 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: D192662AA Benzene	Sample number(s): 1153927-1153930,1153941 20	18.12			91		80-120		
Batch number: F192672AA Benzene	Sample number(s): 1153931-1153940 20	18.31			92		80-120		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:03

Group Number: 2064735

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19266WAB026	Sample number(s): 1153927-1153940								
Benzo(a)anthracene	1.00	0.940			94		69-126		
Benzo(a)pyrene	1.00	0.953			95		78-130		
Benzo(b)fluoranthene	1.00	1.07			107		72-143		
Benzo(k)fluoranthene	1.00	1.03			103		70-134		
Chrysene	1.00	0.975			97		70-114		
Dibenz(a,h)anthracene	1.00	0.912			91		72-138		
Indeno(1,2,3-cd)pyrene	1.00	0.937			94		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19266A94A	Sample number(s): 1153927-1153938,1153940-1153941								
NWTPH-Gx water C7-C12	1100	1392			127		64-131		
Batch number: 19267B20A	Sample number(s): 1153939								
NWTPH-Gx water C7-C12	1100	1213.2			110		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 192630026A	Sample number(s): 1153927-1153936								
DX DRO C12-C24 w/ SiGel	600.1	244.32	600.1	198.9	41	33	10-115	20	20
Batch number: 192630027A	Sample number(s): 1153937-1153940								
DX DRO C12-C24 w/ SiGel	600.1	219.96			37		10-115		

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: D192662AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1153927	94	95	104	105
1153928	96	98	104	105
1153929	94	95	102	104
1153930	95	97	102	104
1153941	95	100	103	105
Blank	96	97	102	105
LCS	95	99	103	103
Limits:	80-120	80-120	80-120	80-120

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:03

Group Number: 2064735

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F192672AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1153931	92	97	102	99
1153932	91	95	103	98
1153933	90	96	103	98
1153934	91	97	103	96
1153935	91	97	103	97
1153936	90	96	102	98
1153937	91	99	101	95
1153938	92	96	101	98
1153939	93	97	102	98
1153940	91	95	103	98
Blank	91	97	103	97
LCS	90	99	104	99
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19266WAB026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1153927	72	11*	54
1153928	85	63	59
1153929	69	33	57
1153930	69	35	57
1153931	78	50	65
1153932	68	39	52
1153933	68	37	54
1153934	67	50	49
1153935	71	52	55
1153936	79	18	59
1153937	72	50	55
1153938	88	61	78
1153939	56	46	59
1153940	62	40	54
Blank	79	66	62
LCS	75	69	57
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 19266A94A

	Trifluorotoluene-F
1153927	80
1153928	81

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:03

Group Number: 2064735

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19266A94A

	Trifluorotoluene-F
1153929	84
1153930	85
1153931	83
1153932	90
1153933	88
1153934	86
1153935	77
1153936	78
1153937	83
1153938	79
1153940	89
1153941	83
Blank	78
LCS	97

Limits: 50-150

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19267B20A

	Trifluorotoluene-F
1153939	82
Blank	100
LCS	105

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 192630026A

	Orthoterphenyl	Capric Acid
1153927	64	0
1153928	66	0
1153929	68	0
1153930	60	0
1153931	58	0
1153932	59	0
1153933	50	0
1153934	59	0
1153935	64	0
1153936	64	0
Blank	63	0
LCS	66	0
LCSD	58	0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:03

Group Number: 2064735

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 192630026A

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 192630027A

	Orthoterphenyl	Capric Acid
1153937	70	0
1153938	56	0
1153939	45*	0
1153940	72	0
Blank	70	0
LCS	66	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only
 Group # 2064735 Sample # 1153927-41
 Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks		
Facility # <u>Edmonds Terminal NWENV PM 600143080</u> Site Address <u>11720 Unoco Rd, Edmonds, WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u> Consultant Project Mgr. <u>Samuel Miles</u> Consultant Phone # _____				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				Total Number of Containers _____ <input type="checkbox"/> BTEX+MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth 8260 full scan Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ CP4HS 8270 SIM										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		
2 Sample Identification		3 Collected		Grab		Composite												9		
		Date	Time																	
MW-104		9/17/19	1220	X				X											* Use Standard SGC	
MW-129R			1000	X				X												
MW-522			1050	X				X												
MW-525			1010	X				X												
MW-526			1210	X				X												
MW-530			1350	X				X												
MW-531			1215	X				X												
MW-532			1055	X				X												
MW-533			1320	X				X												
MW-534			1245	X				X												
MW-535			1310	X				X												
MW-ER			1120	X				X												
LM-2			1340	X				X												
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date	Time	Received by				Date	Time					
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				Ryan Brauchle				9-17-2019	1530	Fed Ex				9-17-19	1530					
				Relinquished by				Date	Time	Received by				Date	Time					
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Received by				Date	Time							
<input type="radio"/> Type I - Full <input type="radio"/> Type VI (Raw Data)				<input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other _____				Kerstin [Signature]				9/19/19	1015							
EDD (circle if required) <input type="checkbox"/> CVX-RTBU-FL_05 (default) Other: _____				Temperature Upon Receipt <u>0.5-24</u> °C				Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No												

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2064735 Sample # 1153927-41

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks				
Facility #		WBS		Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>		Total Number of Containers BTEX+MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS 8270 SIM														SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy's on highest hit <input type="checkbox"/> Run ___ oxy's on all hits				
Edmonds Terminal		NWENVPM600143080																						
Site Address																								
11720 Unoco Rd Edmonds, WA																								
Chevron PM		Lead Consultant																						
Kim Jolite		Arcadis																						
Consultant/Office																								
1100 Olive Way Suite 800, Seattle WA																								
Consultant Project Mgr.																								
Samuel Miles																								
Consultant Phone #																								
Sampler																								
Kelsey Franz, Ryan Branch, Brett Tobin, Kiley Zaucki																								
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE 8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	CPAHS 8270 SIM
Date	Time																							
DUP-1	9/17/19			X			X		7	X				X	X									X
TRIP BLANKS							X		3	X					X									
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by			Date	Time	Received by			Date	Time											
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				Ryan Brauchle			9-17-2019	1530	FedEx			9-17-19	1530											
8 Data Package (circle if required)				Relinquished by Commercial Carrier:			Received by			Date	Time													
<input type="radio"/> Type I - Full <input type="radio"/> EDD (circle if required) CVX-RTBU-FL_05 (default) <input type="radio"/> Type VI (Raw Data) Other: _____				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			Keratin			9/19/19	1015													
				Temperature Upon Receipt			Custody Seals Intact?																	
				0.5-2.4 °C			Yes			No														



Client: Chevron Edmonds Terminal

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 09/19/2019
 Number of Packages: 3 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	3
Samples Chilled:	Yes	Trip Blank Type:	HCl
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25 684) at 13:33 on 09/19/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.5	DT	Wet	Y	Bagged	N
2	DT131	2.4	DT	Wet	Y	Bagged	N
3	DT131	1.0	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: October 08, 2019 16:20

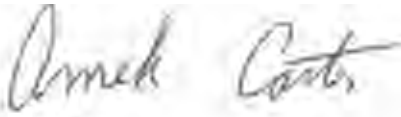
Project: Edmonds Terminal

Account #: 11964
Group Number: 2064830
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink
Attn: Daniel Gilbert

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-8R-W-190918 Grab Groundwater	09/18/2019 09:10	1154546
MW-8R-W-190918MS Grab Groundwater	09/18/2019 09:10	1154547
MW-8R-W-190918MSD Grab Groundwater	09/18/2019 09:10	1154548
MW-20R-W-190918 Grab Groundwater	09/18/2019 10:20	1154549
MW-101-W-190918 Grab Groundwater	09/18/2019 12:45	1154550
MW-139R-W-190918 Grab Groundwater	09/18/2019 09:50	1154551
MW-502-W-190918 Grab Groundwater	09/18/2019 09:05	1154552
MW-503-W-190918 Grab Groundwater	09/18/2019 10:30	1154553
MW-504-W-190918 Grab Groundwater	09/18/2019 11:25	1154554
MW-505-W-190918 Grab Groundwater	09/18/2019 12:40	1154555
MW-515-W-190918 Grab Groundwater	09/18/2019 09:25	1154556
MW-516-W-190918 Grab Groundwater	09/18/2019 10:45	1154557
MW-517-W-190918 Grab Groundwater	09/18/2019 12:10	1154558
MW-518-W-190918 Grab Groundwater	09/18/2019 11:10	1154559
MW-513-W-190918 Grab Groundwater	09/18/2019 13:40	1154560
MW-520-W-190918 Grab Groundwater	09/18/2019 11:45	1154561
MW-521-W-190918 Grab Groundwater	09/18/2019 12:15	1154562
DUP-2-WD-190918 Grab Groundwater	09/18/2019	1154563
DUP-3-WD-190918 Grab Groundwater	09/18/2019	1154564
QA-T-190918 NA Water	09/18/2019	1154565

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-8R-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154546
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 15:08	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 15:07	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 11:27	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 19:59	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 19:58	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 18:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-8R-W-190918MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154547
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	24	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.8	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.8	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	210	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 15:32	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 15:31	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 11:55	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 20:24	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 20:23	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 18:56	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-8R-W-190918MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154548
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	23	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.8	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	0.05	1
14244	Chrysene	218-01-9	0.8	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.8	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	220	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192662AA	09/23/2019 15:56	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192662AA	09/23/2019 15:55	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 12:23	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 20:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 20:49	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 19:18	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-20R-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154549
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 10:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 19:21	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 19:20	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 12:50	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 21:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 21:15	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 19:41	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154550
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	650	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 19:43	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 19:42	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 13:18	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 21:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 21:40	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 20:04	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154551
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 20:05	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 20:04	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 13:46	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 22:07	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 22:06	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 21:05	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154552
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 20:28	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 20:27	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 14:13	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266A94A	09/23/2019 22:33	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266A94A	09/23/2019 22:32	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 21:28	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154553
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 10:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192672AA	09/24/2019 20:50	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192672AA	09/24/2019 20:49	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 14:41	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 07:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 07:30	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192630027A	09/27/2019 21:50	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192630027A	09/22/2019 14:10	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154554
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 11:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
Due to the need for reanalysis of the sample, the requirement for no headspace was not met. This analysis was performed from a previously opened container with headspace.						
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	21 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 16:27	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 16:26	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 15:08	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 07:56	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 07:55	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 21:13	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154555
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 12:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
Due to the need for reanalysis of the sample, the requirement for no headspace was not met. This analysis was performed from a previously opened container with headspace.						
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	19 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 16:49	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 16:48	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 15:36	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 08:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 08:21	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 21:36	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154556
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 09:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 17:06	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 17:05	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 16:04	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 08:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 08:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 21:59	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154557
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 17:31	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 17:30	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 16:31	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 09:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 09:12	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 22:22	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154558
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 12:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	31 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 17:55	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 17:54	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 16:59	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 09:40	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 09:39	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 22:45	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154559
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 11:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	520	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 18:19	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 18:18	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 17:27	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 10:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 10:04	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 23:08	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154560
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 13:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	50 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 18:43	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 18:42	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 17:54	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 10:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 10:30	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 23:31	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-520-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154561
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 11:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.

GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	22 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. A reextraction was unable to be performed within the hold time.

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 19:07	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 19:06	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 18:22	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 10:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 10:56	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/03/2019 23:54	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-W-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154562
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019 12:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 19:31	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 19:30	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 18:50	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 11:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 11:47	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730012A	10/04/2019 00:16	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730012A	09/30/2019 15:50	Oswaldo R Sanchez	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-WD-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154563
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 19:55	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 19:54	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 19:17	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 12:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 12:13	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 19:42	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-WD-190918 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154564
ELLE Group #: 2064830
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	490	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 20:19	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 20:18	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19267WAE026	09/25/2019 19:45	Kira N Beck	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19267WAE026	09/25/2019 02:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 12:40	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 12:39	Jeremy C Giffin	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 20:05	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190918 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1154565
ELLE Group #: 2064830
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 09/19/2019 10:13
Collection Date/Time: 09/18/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
13130	Benzene	SW-846 8260C 71-43-2	ug/l N.D.	ug/l 0.2	ug/l 1	1
GC Volatiles						
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	D192691AA	09/26/2019 20:43	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	D192691AA	09/26/2019 20:42	Alexander D Sechrist	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19266B94A	09/24/2019 07:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19266B94A	09/24/2019 07:03	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: D192662AA Benzene	Sample number(s): 1154546-1154548 N.D.	0.2	1
Batch number: D192691AA Benzene	Sample number(s): 1154556-1154565 N.D.	0.2	1
Batch number: F192672AA Benzene	Sample number(s): 1154549-1154553 N.D.	0.2	1
Batch number: F192701AA Benzene	Sample number(s): 1154554-1154555 N.D.	0.2	1
Batch number: 19267WAE026 Benzo(a)anthracene	Sample number(s): 1154546-1154564 N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19266A94A NWTPH-Gx water C7-C12	Sample number(s): 1154546-1154552 N.D.	19	250
Batch number: 19266B94A NWTPH-Gx water C7-C12	Sample number(s): 1154553-1154565 N.D.	19	250
Batch number: 192630027A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154546-1154553 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 192730012A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154554-1154562 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 192730013A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154563-1154564 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max		
Batch number: D192662AA Benzene	Sample number(s): 1154546-1154548 20		18.12		91		80-120				
Batch number: D192691AA Benzene	Sample number(s): 1154556-1154565 20		19.08		95		80-120				
Batch number: F192672AA Benzene	Sample number(s): 1154549-1154553 20		18.31		92		80-120				
Batch number: F192701AA Benzene	Sample number(s): 1154554-1154555 20		18.39		92		80-120				
	ug/l	ug/l	ug/l	ug/l							
Batch number: 19267WAE026 Benzo(a)anthracene	Sample number(s): 1154546-1154564 1.00		0.940		94		69-126				
Benzo(a)pyrene	1.00		1.02		102		78-130				
Benzo(b)fluoranthene	1.00		1.05		105		72-143				
Benzo(k)fluoranthene	1.00		0.952		95		70-134				
Chrysene	1.00		0.877		88		70-114				
Dibenz(a,h)anthracene	1.00		0.992		99		72-138				
Indeno(1,2,3-cd)pyrene	1.00		1.08		108		73-147				
	ug/l	ug/l	ug/l	ug/l							
Batch number: 19266A94A NWTPH-Gx water C7-C12	Sample number(s): 1154546-1154552 1100		1392		127		64-131				
Batch number: 19266B94A NWTPH-Gx water C7-C12	Sample number(s): 1154553-1154565 1100		1383.08		1100	1394.32	126	127	64-131	1	30
	ug/l	ug/l	ug/l	ug/l							
Batch number: 192630027A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154546-1154553 600.1		219.96		37		10-115				
Batch number: 192730012A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154554-1154562 600.1		225.6		600.1	133.18	38	22	10-115	52*	20
Batch number: 192730013A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154563-1154564 600.1		212.7		35		10-115				

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: D192662AA Benzene	Sample number(s): 1154546-1154548 UNSPK: 1154546									
	N.D.	20	23.83	20	23.34	119	117	80-120	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19267WAE026	Sample number(s): 1154546-1154564 UNSPK: 1154546									
Benzo(a)anthracene	N.D.	1.04	0.938	1.00	0.894	90	89	69-126	5	30
Benzo(a)pyrene	N.D.	1.04	0.830	1.00	0.826	80	82	78-130	1	30
Benzo(b)fluoranthene	N.D.	1.04	0.971	1.00	0.877	93	87	72-143	10	30
Benzo(k)fluoranthene	N.D.	1.04	0.889	1.00	0.829	85	83	70-134	7	30
Chrysene	N.D.	1.04	0.835	1.00	0.804	80	80	70-114	4	30
Dibenz(a,h)anthracene	N.D.	1.04	0.874	1.00	0.794	84	79	72-138	10	30
Indeno(1,2,3-cd)pyrene	N.D.	1.04	0.952	1.00	0.877	91	87	73-147	8	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19266A94A NWTPH-Gx water C7-C12	Sample number(s): 1154546-1154552 UNSPK: 1154546									
	N.D.	1100	1518.96	1100	1517.98	138*	138*	80-120	0	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 192630027A DX DRO C12-C24 w/ SiGel	Sample number(s): 1154546-1154553 UNSPK: 1154546									
	N.D.	612.35	205.12	597.71	221.18	33	37	30-115	8	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: D192662AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1154546	95	96	103	104
1154547	94	100	102	102
1154548	96	101	102	104
Blank	96	97	102	105
LCS	95	99	103	103
MS	94	100	102	102
MSD	96	101	102	104
Limits:	80-120	80-120	80-120	80-120

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: D192691AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1154556	97	94	103	103
1154557	95	95	104	103
1154558	98	95	104	103
1154559	97	92	104	107
1154560	97	95	103	104
1154561	98	94	105	104
1154562	97	98	103	102
1154563	98	96	104	103
1154564	97	96	104	106
1154565	96	95	104	102
Blank	98	96	105	104
LCS	96	97	105	104
Limits:	80-120	80-120	80-120	80-120

Analysis Name: Benzene
Batch number: F192672AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1154549	91	99	103	96
1154550	91	98	103	99
1154551	92	97	102	97
1154552	91	95	102	96
1154553	91	99	103	98
Blank	91	97	103	97
LCS	90	99	104	99
Limits:	80-120	80-120	80-120	80-120

Analysis Name: Benzene
Batch number: F192701AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1154554	93	96	102	96
1154555	93	96	101	96
Blank	94	95	101	96
LCS	90	99	101	98
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19267WAE026

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19267WAE026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1154546	72	56	52
1154547	72	58	55
1154548	70	60	51
1154549	71	15*	52
1154550	65	30	74
1154551	67	51	52
1154552	65	48	50
1154553	57	53	46
1154554	70	10*	55
1154555	68	9*	53
1154556	65	5*	52
1154557	63	6*	44
1154558	67	6*	53
1154559	70	20	57
1154560	66	8*	46
1154561	65	17*	50
1154562	68	44	50
1154563	66	46	51
1154564	67	16*	53
Blank	78	79	55
LCS	75	74	61
MS	72	58	55
MSD	70	60	51
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19266A94A

	Trifluorotoluene-F
1154546	87
1154547	101
1154548	103
1154549	84
1154550	85
1154551	86
1154552	86
Blank	78
LCS	97
MS	101
MSD	103

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 19266A94A

Limits: 50-150

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 19266B94A

	Trifluorotoluene-F
1154553	78
1154554	83
1154555	86
1154556	86
1154557	86
1154558	89
1154559	80
1154560	86
1154561	86
1154562	84
1154563	87
1154564	79
1154565	87
Blank	89
LCS	99
LCSD	99

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 192630027A

	Orthoterphenyl	Capric Acid
1154546	68	0
1154547	60	0
1154548	65	0
1154549	77	0
1154550	64	0
1154551	68	0
1154552	69	0
1154553	73	0
Blank	70	0
LCS	66	0
MS	60	0
MSD	65	0

Limits: 50-150 0-1

*- Outside of specification

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(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/08/2019 16:20

Group Number: 2064830

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 192730012A

	Orthoterphenyl	Capric Acid
1154554	60	0
1154555	57	0
1154556	56	0
1154557	53	0
1154558	62	0
1154559	60	0
1154560	52	0
1154561	47*	0
1154562	60	0
Blank	68	0
LCS	63	0
LCSD	45*	0
Limits:	50-150	0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 192730013A

	Orthoterphenyl	Capric Acid
1154563	58	0
1154564	55	0
Limits:	50-150	0-1

	Orthoterphenyl
Blank	63
LCS	58
Limits:	50-150

*- Outside of specification

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(1) The result for one or both determinations was less than five times the LOQ.

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Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2064830 Sample # 1154546-65

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																																																																																																																																																																																																																																																																																																																																																																												
Facility # <u>Edmonds Terminal NWENVPM606143080</u>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil Total Number of Containers BTEX-MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPAHS 8270 SIM				SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ____ oxy's on highest hit <input type="checkbox"/> Run ____ oxy's on all hits												*use standard SGC																																																																																																																																																																																																																																																																																																																																																																												
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Method	CPAHS	SIM	Date	Time	MW-8R (MS/MSD)	9/18/19	0910	X			X		7	X					X	X									X		MW-20R		1020						7																		MW-101		1245						7																		MW-139R		0950						7																		MW-502		0905						7																		MW-503		1030						7																		MW-504		1125						7																		MW-505		1240						7																		MW-515		0925						7																		MW-516		1045						7																		MW-517		1210						7																		MW-518		1110						7																		MW-513		1340						7																																	
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7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by <u>Kiley Zanbi</u> Date <u>9-18-19</u> Time <u>1530</u>				Received by <u>FedEx</u> Date <u>9-18-19</u> Time <u>1530</u>																																																																																																																																																																																																																																																																																																																																																																																								
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FL_05 (default) Other:				Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt <u>47.5, 6 °C</u>				Received by <u>Kristin [Signature]</u> Date <u>9/19/19</u> Time <u>1013</u> Custody Seals Intact? Yes No																																																																																																																																																																																																																																																																																																																																																																																				

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2064830 Sample # 1154546-65

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks								
Facility # <u>Edmonds Terminal NWENVPM600143080</u> Site Address <u>11720 Unoco Rd, Edmonds WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u> Consultant Project Mgr. <u>Samuel Mills</u> Consultant Phone # _____ Sampler <u>Kelsey Franz, Ryan Brachuk, Kiley Zambi, Brett Tobin</u>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Soil				Total Number of Containers _____ <input type="checkbox"/> BTEX+MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth 8260 full scan Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ CRALS 8270 SIM										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits								
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX+MTBE 8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	9		
Date	Time	Date	Time																					Date	Time	Date
MW-520	9/18/19	1145	X	X			X	7	X						X	X										* Use Standard SGC
MW-521		1215						7																		
DUP-2								7																		
DUP-3								7																		
Trip Blank								3																		
7 Turnaround Time Requested (TAT) (please circle) Standard <u>5 day</u> 4 day 72 hour 48 hour 24 hour				Relinquished by <u>Kiley Zambi</u> Date <u>9-18-19</u> Time <u>1530</u>				Received by <u>FedEx</u> Date <u>9-18-19</u> Time <u>1530</u>				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____										
8 Data Package (circle if required) Type I - Full _____ Type VI (Raw Data) _____				EDD (circle if required) CVX-RTBU-FL_05 (default) _____ Other: _____				Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____				Received by <u>Kovach</u> Date <u>9/19/19</u> Time <u>1013</u>				Temperature Upon Receipt <u>475.8</u> °C Custody Seals Intact? Yes No										



Client: Chevron

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 09/19/2019
 Number of Packages: 4 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	3
Samples Chilled:	Yes	Trip Blank Type:	HCl
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Darian Jaynes (29952) at 21:36 on 09/19/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	5.8	DT	Wet	Y	Bagged	N
2	DT146	0.4	DT	Wet	Y	Bagged	N
3	DT146	1.1	DT	Wet	Y	Bagged	N
4	DT146	1.2	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: October 07, 2019 12:32


Project: Edmonds Terminal

Account #: 11964
Group Number: 2065262
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink
Attn: Daniel Gilbert

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-126-W-190919 Grab Groundwater	09/19/2019 11:10	1156858
MW-143-W-190919 Grab Groundwater	09/19/2019 10:05	1156859
MW-506-W-190919 Grab Groundwater	09/19/2019 08:50	1156860
MW-507-W-190919 Grab Groundwater	09/19/2019 09:45	1156861
MW-509-W-190919 Grab Groundwater	09/19/2019 10:25	1156862
MW-511-W-190919 Grab Groundwater	09/19/2019 09:00	1156863
MW-512-W-190919 Grab Groundwater	09/19/2019 09:55	1156864
MW-512-W-190919MS Grab Groundwater	09/19/2019 09:56	1156865
MW-512-W-190919MSD Grab Groundwater	09/19/2019 09:57	1156866
MW-514-W-190919 Grab Groundwater	09/19/2019 08:45	1156867
MW-519-W-190919 Grab Groundwater	09/19/2019 11:05	1156868
DUP-4-WD-190919 Grab Groundwater	09/19/2019	1156869
QA-T-190919 NA Water	09/19/2019	1156870

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-126-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156858
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 11:10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 12:02	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 12:01	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 05:55	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 10:07	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 10:06	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 20:27	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156859
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 10:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 12:24	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 12:23	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 06:23	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 10:33	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 10:32	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 20:50	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156860
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 08:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	23 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 12:46	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 12:45	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 06:51	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 10:58	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 10:57	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 21:13	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156861
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 09:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 13:09	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 13:08	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 07:18	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 11:24	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 11:23	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 21:36	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156862
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 10:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 13:31	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 13:30	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 07:46	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 11:50	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 11:49	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 21:59	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156863
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 09:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 13:53	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 13:52	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 08:13	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 12:16	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 12:15	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 22:22	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156864
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 09:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	45 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 14:15	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 14:14	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 08:41	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 07:33	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 07:32	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 22:45	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190919MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156865
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 09:56

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	21	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.8	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.2	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.6	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.5	0.01	0.05	1
14244	Chrysene	218-01-9	0.8	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.3	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.2	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	160	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 14:37	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 14:36	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 09:09	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 07:58	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 07:57	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 23:08	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-190919MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156866
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 09:57

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	21	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.7	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.2	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.6	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.5	0.01	0.05	1
14244	Chrysene	218-01-9	0.8	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.3	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.2	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	160	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 14:59	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 14:58	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 09:36	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 08:24	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 08:23	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 23:31	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156867
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 08:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 15:21	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 15:20	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 10:04	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 08:50	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 08:49	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730013A	10/03/2019 23:54	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730013A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-W-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156868
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019 11:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 15:43	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 15:42	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 23:20	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 09:15	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 09:14	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730014A	10/03/2019 11:38	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730014A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-190919 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156869
ELLE Group #: 2065262
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1

Sample Comments

State of Washington Lab Certification No. C457
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 16:05	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 16:04	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19268WAQ026	09/27/2019 23:48	Brandon K Cordova	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19268WAQ026	09/26/2019 08:30	Logan M Brosemer	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19270B94A	09/28/2019 09:41	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19270B94A	09/28/2019 09:40	Marie D Beamenderfer	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	192730014A	10/03/2019 12:01	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	192730014A	09/30/2019 18:15	Logan M Brosemer	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-190919 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1156870
ELLE Group #: 2065262
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 09/20/2019 10:15
Collection Date/Time: 09/19/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F192701AA	09/27/2019 11:41	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F192701AA	09/27/2019 11:40	Alexander D Sechrist	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19269A94A	09/26/2019 21:18	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19269A94A	09/26/2019 21:17	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/07/2019 12:32

Group Number: 2065262

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: F192701AA	Sample number(s): 1156858-1156870		
Benzene	N.D.	0.2	1
Batch number: 19268WAQ026	Sample number(s): 1156858-1156869		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19269A94A	Sample number(s): 1156870		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19270B94A	Sample number(s): 1156858-1156869		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 192730013A	Sample number(s): 1156858-1156867		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 192730014A	Sample number(s): 1156868-1156869		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: F192701AA	Sample number(s): 1156858-1156870								
Benzene	20	18.39			92		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19268WAQ026	Sample number(s): 1156858-1156869								
Benzo(a)anthracene	1.00	0.973			97		69-126		
Benzo(a)pyrene	1.00	1.04			104		78-130		
Benzo(b)fluoranthene	1.00	1.08			108		72-143		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/07/2019 12:32

Group Number: 2065262

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(k)fluoranthene	1.00	1.06			106		70-134		
Chrysene	1.00	0.946			95		70-114		
Dibenz(a,h)anthracene	1.00	1.00			100		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.09			109		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19269A94A NWTPH-Gx water C7-C12	Sample number(s): 1156870 1100	1385.21	1100	1398.07	126	127	64-131	1	30
Batch number: 19270B94A NWTPH-Gx water C7-C12	Sample number(s): 1156858-1156869 1100	1389.86			126		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 192730013A DX DRO C12-C24 w/ SiGel	Sample number(s): 1156858-1156867 600.1	212.7			35		10-115		
Batch number: 192730014A DX DRO C12-C24 w/ SiGel	Sample number(s): 1156868-1156869 600.1	235.5	600.1	189.42	39	32	10-115	22*	20

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: F192701AA Benzene	Sample number(s): 1156858-1156870 UNSPK: 1156864 N.D.	20	21.05	20	20.64	105	103	80-120	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19268WAQ026	Sample number(s): 1156858-1156869 UNSPK: 1156864									
Benzo(a)anthracene	N.D.	1.01	0.786	1.01	0.748	78	74	69-126	5	30
Benzo(a)pyrene	N.D.	1.01	0.222	1.01	0.246	22*	24*	78-130	10	30
Benzo(b)fluoranthene	N.D.	1.01	0.644	1.01	0.619	64*	61*	72-143	4	30
Benzo(k)fluoranthene	N.D.	1.01	0.522	1.01	0.474	52*	47*	70-134	10	30
Chrysene	N.D.	1.01	0.826	1.01	0.801	82	80	70-114	3	30
Dibenz(a,h)anthracene	N.D.	1.01	0.293	1.01	0.285	29*	28*	72-138	3	30
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.186	1.01	0.198	18*	20*	73-147	6	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19270B94A NWTPH-Gx water C7-C12	Sample number(s): 1156858-1156869 UNSPK: 1156864 45.35	1100	1481.77	1100	1467.21	131*	129*	80-120	1	30

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/07/2019 12:32

Group Number: 2065262

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 192730013A DX DRO C12-C24 w/ SiGel										
	ug/l	ug/l	ug/l	ug/l	ug/l					
Sample number(s): 1156858-1156867 UNSPK: 1156864	N.D.	607.39	162.59	617.39	159.73	27*	26*	30-115	2	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F192701AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1156858	93	94	102	96
1156859	92	94	101	97
1156860	93	95	102	97
1156861	92	95	101	96
1156862	92	97	101	96
1156863	91	94	101	96
1156864	92	97	101	97
1156865	91	99	101	99
1156866	91	96	101	99
1156867	92	95	102	98
1156868	92	97	101	96
1156869	92	95	101	96
1156870	91	97	101	96
Blank	94	95	101	96
LCS	90	99	101	98
MS	91	99	101	99
MSD	91	96	101	99
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19268WAQ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1156858	64	51	54
1156859	62	66	59
1156860	65	46	62
1156861	66	53	63

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/07/2019 12:32

Group Number: 2065262

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19268WAQ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1156862	71	39	67
1156863	68	61	58
1156864	67	18	64
1156865	71	17*	55
1156866	67	18	55
1156867	71	10*	67
1156868	71	56	63
1156869	69	46	61
Blank	79	72	67
LCS	78	75	41
MS	71	17*	55
MSD	67	18	55
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19269A94A

	Trifluorotoluene-F
1156870	87
Blank	78
LCS	96
LCSD	100
Limits:	50-150

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19270B94A

	Trifluorotoluene-F
1156858	88
1156859	88
1156860	79
1156861	88
1156862	77
1156863	82
1156864	77
1156865	95
1156866	95
1156867	78
1156868	86
1156869	87
Blank	77
LCS	99

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 10/07/2019 12:32

Group Number: 2065262

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19270B94A

	Trifluorotoluene-F
MS	95
MSD	95

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 192730013A

	Orthoterphenyl	Capric Acid
1156858	61	0
1156859	58	0
1156860	69	0
1156861	67	0
1156862	60	0
1156863	61	0
1156864	58	0
1156865	50	0
1156866	48*	0
1156867	68	0
MS	50	0
MSD	48*	0

Limits: 50-150 0-1

	Orthoterphenyl
Blank	63
LCS	58

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 192730014A

	Orthoterphenyl	Capric Acid
1156868	67	0
1156869	60	0
Blank	54	0
LCS	53	0
LCSD	49*	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories
Environmental**

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only
Group # 2065262 Sample # 1156858-70
Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks					
Facility # <u>Edmonds Terminal NWENVPMG00143080</u> Site Address <u>11720 Unoco Rd, Edmonds WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>1100 Olive Way Suite 800, Seattle WA</u> Consultant Project Mgr. <u>Samuel Miles</u> Consultant Phone # _____			Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>			Total Number of Containers _____ BTEX+MTBE+8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ PAHS 8270 SIM										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits					
2 Sample Identification Collected Date Time Grab Composite Soil Water Oil Total Number of Containers BTEX+MTBE+8260 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup NWTPH-Dx without Silica Gel Cleanup WA VPH WA EPH Lead Total Diss. Method PAHS 8270 SIM			3 Sampler <u>Kelsey Franz, Brett Tobin, Ryan Bianchi</u>													6 Remarks <u>*use standard SGC</u>					
7 Turnaround Time Requested (TAT) (please circle) Standard <u>5 day</u> 4 day 72 hour 48 hour 24 hour			Relinquished by <u>Brett Tobin</u> Date <u>9-19-19</u> Time <u>1230</u> Received by <u>FedEx</u> Date <u>9-19-19</u> Time <u>1230</u>													9					
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)			EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____			Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____ Temperature Upon Receipt <u>0.8-5.8°C</u>			Received by <u>[Signature]</u> Date <u>9/20/19</u> Time <u>1015</u> Custody Seals Intact? <u>Yes</u> No												



Client: Chevron

Edmonds Terminal NWENVPMG00143080

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 09/20/2019
 Number of Packages: 3 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	No
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	3
Samples Chilled:	Yes	Trip Blank Type:	HCl
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25 684) at 08:38 on 09/21/2019

Samples Chilled Details: Edmonds Terminal NWENVPMG00143080

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	DT	Wet	Y	Bagged	N
2	DT146	1.4	DT	Wet	Y	Bagged	N
3	DT146	5.8	DT	Wet	Y	Bagged	N

Sample ID Discrepancy Details: Edmonds Terminal NWENVPMG00143080

<u>Sample ID on COC</u>	<u>Sample ID on Label</u>	<u>Comments</u>
MW-507	MW-207	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: December 26, 2019 12:36


Project: Edmonds Terminal

Account #: 11964
Group Number: 2078384
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-139R-W-191209 Grab Groundwater	12/09/2019 12:20	1219083
MW-502-W-191209 Grab Groundwater	12/09/2019 13:43	1219084
MW-503-W-191209 Grab Groundwater	12/09/2019 14:53	1219085
MW-504-W-191209 Grab Groundwater	12/09/2019 15:22	1219086
MW-505-W-191209 Grab Groundwater	12/09/2019 13:42	1219087
MW-506-W-191209 Grab Groundwater	12/09/2019 14:55	1219088
MW-507-W-191209 Grab Groundwater	12/09/2019 15:20	1219089
MW-509-W-191209 Grab Groundwater	12/09/2019 13:50	1219090
MW-511-W-191209 Grab Groundwater	12/09/2019 12:03	1219091
MW-512-W-191209 Grab Groundwater	12/09/2019 10:23	1219092
MW-512-W-191209 MS Grab Groundwater	12/09/2019 10:23	1219093
MW-512-W-191209 MSD Grab Groundwater	12/09/2019 10:23	1219094
MW-512-W-191209 DUP Grab Groundwater	12/09/2019 10:23	1219095
MW-513-W-191209 Grab Groundwater	12/09/2019 10:42	1219096
MW-514-W-191209 Grab Groundwater	12/09/2019 10:35	1219097
MW-515-W-191209 Grab Groundwater	12/09/2019 13:15	1219098
MW-516-W-191209 Grab Groundwater	12/09/2019 11:55	1219099
MW-517-W-191209 Grab Groundwater	12/09/2019 11:52	1219100
MW-518-W-191209 Grab Groundwater	12/09/2019 10:30	1219101
DUP-1-WD-191209 Grab Groundwater	12/09/2019	1219102
QA-T-191209 NA Water	12/09/2019	1219103

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-139R-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219083
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	11	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1.6 J	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	480 J	250	500	5
00228	Sulfate	14808-79-8	135,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 14:16	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:15	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAB026	12/13/2019 16:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAB026	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219083
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:56	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:38	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 14:49	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:46	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 20:03	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 22:23	Samantha Faverio	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219084
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:43

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3.5 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	261	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	21,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 14:38	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:37	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAB026	12/13/2019 17:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAB026	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219084
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 13:43

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 00:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 00:21	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:53	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:12	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:52	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 20:19	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 20:19	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219085
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	67	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	489	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	25,500	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 21:00	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219085
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:53

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 00:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 00:47	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 13:08	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:35	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:54	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:06	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 21:06	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219086
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	160	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	641	1.3	4.0	2
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	960	250	500	5
00228	Sulfate	14808-79-8	259,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:21	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 15:20	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 22:41	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219086
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 15:22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 01:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 01:13	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 13:23	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:58	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:00	Janeyah Rivers-Hamilton	2
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:21	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/11/2019 18:32	Niyati Desai	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219087
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	22 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,000	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,670	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	253,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 15:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 23:08	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219087
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 13:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 01:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 01:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 13:15	Esther Kathryn Lane	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 16:20	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:08	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:37	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 22:54	Samantha Faverio	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219088
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	11,000	150	250	50
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	7,400	6.3	20.0	10
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	142,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:05	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 22:31	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219088
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 14:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 02:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 02:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 13:32	Esther Kathryn Lane	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 16:43	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:09	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:52	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/11/2019 18:47	Niyati Desai	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219089
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.02 J	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.02 J	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.02 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.02 J	0.01	0.05	1
14244	Chrysene	218-01-9	0.02 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.02 J	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	53	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	945	1.3	4.0	2
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	134,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:28	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:27	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 23:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219089
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 02:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 02:30	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:06	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:06	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:11	Janeyah Rivers-Hamilton	2
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 22:08	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 23:25	Samantha Faverio	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219090
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	91	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	440	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	180	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	410 J	250	500	5
00228	Sulfate	14808-79-8	137,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:48	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 23:31	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219090
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:50

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 18:21	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 18:20	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:22	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:29	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/13/2019 14:00	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:30	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 12:50	Niyati Desai	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219091
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2.4	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	870	250	500	5
00228	Sulfate	14808-79-8	24,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 17:11	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 17:10	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 00:02	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219091
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 18:47	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 18:46	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:37	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:52	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/13/2019 14:01	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:45	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 01:45	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219092
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	61 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	990	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,730	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	83,400	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 10:17	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:16	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 17:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219092
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 19:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 19:12	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:25	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:02	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:51	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 00:43	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:14	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219093
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	24	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.5	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.6	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.7	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	890 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	280	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,000	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,600	250	500	5
00228	Sulfate	14808-79-8	136,000	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 10:39	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:38	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 19:59	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219093
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 19:38	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 19:37	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:07	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:24	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:59	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:14	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:45	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219094
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	24	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.6	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.7	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,600	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	930 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	250	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 20:30	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:03	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:23	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:47	Timothy M Emrick	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219094
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219095
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,050	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	83,900	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:56	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 00:58	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:30	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219096
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	29 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	240	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	6,310	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	529,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:22	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 11:21	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 23:36	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219096
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:29	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:52	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:10	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:12	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:01	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:05	Niyati Desai	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219097
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	38 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	600	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,450	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	264,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 11:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 01:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219097
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:54	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:42	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:14	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:16	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:21	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219098
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	700	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	4,060	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	501,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:05	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:03	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219098
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 21:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 21:21	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:59	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:55	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:19	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 03:34	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:52	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219099
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	130	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,930	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	430 J	250	500	5
00228	Sulfate	14808-79-8	222,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:27	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:26	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:31	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219099
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 11:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 21:47	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 21:46	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 16:38	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 19:18	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:20	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 03:18	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:37	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219100
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:52

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	110	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,380	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	710	250	500	5
00228	Sulfate	14808-79-8	113,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:48	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:58	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219100
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:52

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 22:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 16:53	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 19:41	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/16/2019 12:22	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:32	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 12:01	Niyati Desai	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219101
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	820	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,100	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	785	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	32,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 13:10	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 13:09	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 03:04	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219101
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450003A	12/12/2019 12:20	Esther Kathryn Lane	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 20:04	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/13/2019 13:33	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344720109A	12/10/2019 19:31	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344720109A	12/10/2019 19:31	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219102
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	840	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,200	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	765	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,300	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 13:32	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 13:31	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 03:34	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219102
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:29	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450003A	12/12/2019 12:38	Esther Kathryn Lane	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 20:26	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/13/2019 13:37	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 04:05	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 12:34	Niyati Desai	5

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-191209 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219103
ELLE Group #: 2078384
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
13130	Benzene	SW-846 8260C 71-43-2	ug/l N.D.	ug/l 0.2	ug/l 1	1
GC Volatiles						
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 09:55	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 09:54	Anita M Dale	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 17:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 17:54	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103		
Benzene	N.D.	0.2	1
Batch number: 19345WAB026	Sample number(s): 1219083-1219084		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19350WAA026	Sample number(s): 1219086-1219087,1219096,1219098-1219100		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100		
Methane	N.D.	3.0	5.0
Batch number: 193450003A	Sample number(s): 1219101-1219102		
Methane	N.D.	3.0	5.0
Batch number: 193450019A	Sample number(s): 1219083-1219091		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193440705003A	Sample number(s): 1219083-1219085,1219092-1219093,1219095		
Manganese	N.D.	0.63	2.0
Batch number: 193440705004A	Sample number(s): 1219086-1219091,1219096-1219099		
Manganese	N.D.	0.63	2.0
Batch number: 193450705001A	Sample number(s): 1219100-1219102		
Manganese	N.D.	0.63	2.0
Batch number: 19344076112B	Sample number(s): 1219083-1219089		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19344076212A	Sample number(s): 1219090-1219093,1219095-1219100,1219102		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19344720109A	Sample number(s): 1219101		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103								
Benzene	20	23.78			119		80-120		
Batch number: 19345WAB026	Sample number(s): 1219083-1219084								
Benzo(a)anthracene	1.00	0.869	1.00	0.854	87	85	69-126	2	30
Benzo(a)pyrene	1.00	0.922	1.00	0.914	92	91	78-130	1	30
Benzo(b)fluoranthene	1.00	0.945	1.00	0.923	95	92	72-143	2	30
Benzo(k)fluoranthene	1.00	0.921	1.00	0.892	92	89	70-134	3	30
Chrysene	1.00	0.860	1.00	0.851	86	85	70-114	1	30
Dibenz(a,h)anthracene	1.00	0.861	1.00	0.853	86	85	72-138	1	30
Indeno(1,2,3-cd)pyrene	1.00	0.921	1.00	0.916	92	92	73-147	1	30
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102								
Benzo(a)anthracene	1.00	0.940			94		69-126		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	1.00	0.985			99		78-130		
Benzo(b)fluoranthene	1.00	1.02			102		72-143		
Benzo(k)fluoranthene	1.00	1.00			100		70-134		
Chrysene	1.00	0.918			92		70-114		
Dibenz(a,h)anthracene	1.00	0.962			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.03			103		73-147		
Batch number: 19350WAA026	Sample number(s): 1219086-1219087,1219096,1219098-1219100								
Benzo(a)anthracene	1.00	0.861			86		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.999			100		72-143		
Benzo(k)fluoranthene	1.00	0.870			87		70-134		
Chrysene	1.00	0.857			86		70-114		
Dibenz(a,h)anthracene	1.00	0.960			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.06			106		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103								
NWTPH-Gx water C7-C12	1100	1407.86			128		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100								
Methane	59.83	55.02			92		85-115		
Batch number: 193450003A	Sample number(s): 1219101-1219102								
Methane	59.83	53.6	59.83	62.31	90	104	85-115	15	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450019A	Sample number(s): 1219083-1219091								
DX DRO C12-C24 w/ SiGel	600.05	190.54	600.05	186.38	32	31	10-115	2	20
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102								
DX DRO C12-C24 w/ SiGel	600.05	347.15			58		10-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193440705003A	Sample number(s): 1219083-1219085,1219092-1219093,1219095								
Manganese	50	51.44			103		85-115		
Batch number: 193440705004A	Sample number(s): 1219086-1219091,1219096-1219099								
Manganese	50	49.39			99		85-115		
Batch number: 193450705001A	Sample number(s): 1219100-1219102								
Manganese	50	48.07			96		85-115		
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19344076112B	Sample number(s): 1219083-1219089								
Nitrate Nitrogen	750	716.93			96		90-110		
Sulfate	7500	7548.01			101		90-110		
Batch number: 19344076212A	Sample number(s): 1219090-1219093,1219095-1219100,1219102								
Nitrate Nitrogen	750	707.42			94		90-110		
Sulfate	7500	7468.63			100		90-110		
Batch number: 19344720109A	Sample number(s): 1219101								
Nitrate Nitrogen	750	765.05			102		90-110		
Sulfate	7500	7622.49			102		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103 UNSPK: 1219092									
Benzene	N.D.	20	24.43	20	23.93	122*	120	80-120	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102 UNSPK: 1219092									
Benzo(a)anthracene	N.D.	1.06	0.948	1.04	0.954	89	92	69-126	1	30
Benzo(a)pyrene	N.D.	1.06	0.451	1.04	0.626	43*	60*	78-130	33*	30
Benzo(b)fluoranthene	N.D.	1.06	0.918	1.04	0.944	87	91	72-143	3	30
Benzo(k)fluoranthene	N.D.	1.06	0.826	1.04	0.853	78	82	70-134	3	30
Chrysene	N.D.	1.06	0.900	1.04	0.896	85	86	70-114	0	30
Dibenz(a,h)anthracene	N.D.	1.06	0.603	1.04	0.698	57*	67*	72-138	15	30
Indeno(1,2,3-cd)pyrene	N.D.	1.06	0.695	1.04	0.927	66*	89	73-147	29	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103 UNSPK: 1219092									
NWTPH-Gx water C7-C12	60.78	1100	1538.85	1100	1586.77	134*	139*	80-120	3	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100 UNSPK: 1219092									
Methane	990.45	59.83	889.05	59.83	928.92	-168 (2)	-102 (2)	73-125	4	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102 UNSPK: 1219092									

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
DX DRO C12-C24 w/ SiGel	N.D.	655.07	280.68	641.08	251.35	43	39	30-115	11	20
Batch number: 193440705003A Manganese	2729.27	50	3000.11				542 (2)	70-130		
Batch number: 193440705004A Manganese	640.99	50	688.13				94 (2)	70-130		
Batch number: 19344076212A Nitrate Nitrogen	N.D.	2500	2598.69				104	90-110		
Sulfate	83427.31	50000	136305.63				106	90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 193440705003A Manganese	2729.27	3047.98	11	20
Batch number: 193440705004A Manganese	640.99	646.54	1	20
Batch number: 19344076212A Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	83427.31	83871.03	1	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1219083	94	95	104	98
1219084	95	94	103	99
1219085	94	96	103	98
1219086	95	96	103	98
1219087	94	97	103	100
1219088	95	99	104	99
1219089	95	96	103	97
1219090	96	95	104	99
1219091	95	96	103	98
1219092	94	98	103	98
1219093	94	97	102	101
1219094	93	100	104	100
1219096	95	99	103	99
1219097	94	94	103	100
1219098	94	97	102	98
1219099	94	97	104	100
1219100	95	95	102	98
1219101	95	95	103	102
1219102	95	96	104	101
1219103	93	96	103	99
Blank	96	93	103	99
LCS	96	99	103	100
MS	94	97	102	101
MSD	93	100	104	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19345WAB026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219083	65	56	49
1219084	63	54	49
Blank	78	68	52
LCS	76	69	65
LCSD	73	68	63
Limits:	48-128	18-129	30-114

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19345WAE026

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19345WAE026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219085	67	50	52
1219088	78	39	65
1219089	62	46	50
1219090	71	36	56
1219091	66	60	53
1219092	57	24	63
1219093	58	26	62
1219094	70	39	60
1219097	71	19	63
1219101	55	32	53
1219102	60	35	64
Blank	75	67	62
LCS	71	68	56
MS	58	26	62
MSD	70	39	60
Limits:	48-128	18-129	30-114

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19350WAA026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219086	69	45	55
1219087	75	49	55
1219096	74	33	54
1219098	69	16*	52
1219099	70	26	54
1219100	67	33	51
Blank	61	58	52
LCS	63	65	52
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19345A94A

	Trifluorotoluene-F
1219083	90
1219084	99
1219085	88
1219086	93
1219087	90
1219088	88
1219089	93

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12
Batch number: 19345A94A

	Trifluorotoluene-F
1219090	101
1219091	101
1219092	92
1219093	104
1219094	106
1219096	87
1219097	88
1219098	88
1219099	98
1219100	96
1219101	88
1219102	90
1219103	91
Blank	90
LCS	102
MS	104
MSD	106

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193450002A

	Propene
1219083	70
1219084	72
1219085	55
1219086	67
1219087	103
1219088	109
1219089	64
1219090	56
1219091	79
1219092	91
1219093	68
1219094	72
1219096	69
1219097	92
1219098	96
1219099	78
1219100	79
Blank	99
LCS	94

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193450002A

	Propene
MS	68
MSD	72
Limits:	46-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193450003A

	Propene
1219101	107
1219102	108
Blank	97
LCS	94
LCSD	84
Limits:	46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450019A

	Orthoterphenyl	Capric Acid
1219083	59	0
1219084	63	0
1219085	59	0
1219086	61	0
1219087	59	0
1219088	60	0
1219089	58	0
1219090	60	0
1219091	66	0
Limits:	50-150	0-1

	Orthoterphenyl
Blank	64
LCS	64
LCSD	63
Limits:	50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450020A

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450020A

	Orthoterphenyl	Capric Acid
1219092	66	0
1219093	70	0
1219094	66	0
1219096	66	0
1219097	76	0
1219098	61	0
1219099	72	0
1219100	70	0
1219101	71	0
1219102	70	0
Blank	76	0
LCS	74	0
MS	70	0
MSD	66	0
Limits:	50-150	0-1

*- Outside of specification

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Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2078384 Sample # 1219083-103

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks						
Facility # <u>Edmonds Terminal NWENVPM600143080</u>		WBS		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	Total Number of Containers 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/>	Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS 8270 SIM Diss. Methane BSK 175 Sulfate + Nitrate 300.0 Diss. Manganese 200.8												SCR #: _____								
Site Address <u>11720 Unoco Road, Edmonds, WA</u>																										
Chevron PM <u>Kim Tolitz</u>		Lead Consultant <u>Arcadis</u>																								
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>																										
Consultant Project Mgr. <u>Samuel Miles</u>																										
Consultant Phone # _____																										
Sampler <u>Kelsey Franz, Kiley Zaubi, Brett Tohin, Dan Gilbert</u>																										
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE Benzene Only	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method	CPAHS 8270 SIM	Diss. Methane BSK 175	Sulfate + Nitrate 300.0	Diss. Manganese 200.8		
Date	Time																									
MW-139R	12/9/19	1220	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-502		1343	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-503		1453	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-504		1522	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-505		1342	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-506		1455	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-507		1520	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-509		1350	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-511		1203	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-512 (MS/MSD)		1023	X			X		42	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-513		1042	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-514		1035	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
MW-515		1315	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u> Date <u>12-9-19</u> Time <u>1430</u>				Received by <u>FedEx</u> Date <u>12-9-19</u> Time _____				9														
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____																		
8 Data Package (circle if required)				Relinquished by Commercial Carrier: _____				Received by <u>[Signature]</u> Date <u>12/10/19</u> Time <u>10:22</u>																		
Type I - Full <input type="checkbox"/> Type VI (Raw Data) <input type="checkbox"/>				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt <u>1.7-3.6 °C</u>				Custody Seals Intact? Yes No																		
EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____																										

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11964 For Lancaster Laboratories use only Group # 2078384 Sample # 1219083-103
Instructions on reverse side correspond with circled numbers.

SCR #: _____

① Client Information				④ Matrix				⑤ Analyses Requested												⑥ Remarks																																																							
Facility # WBS <u>Edmonds Terminal NWENVPM600143080</u>				Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Total Number of Containers</td> <td colspan="2">Oxygenates</td> <td colspan="2">NWTPH GX</td> <td colspan="2">Lead</td> <td colspan="2">WAVPH</td> <td colspan="2">CPAHS</td> <td colspan="2">DISS. Manganese</td> <td colspan="2">DISS. Mithane</td> <td colspan="2">Sulfate & Nitrate</td> </tr> <tr> <td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td><td>8021</td><td>8260</td> </tr> <tr> <td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td> </tr> </table>												Total Number of Containers		Oxygenates		NWTPH GX		Lead		WAVPH		CPAHS		DISS. Manganese		DISS. Mithane		Sulfate & Nitrate		8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ____ oxy's on highest hit <input type="checkbox"/> Run ____ oxy's on all hits	
Total Number of Containers		Oxygenates		NWTPH GX		Lead		WAVPH		CPAHS		DISS. Manganese		DISS. Mithane		Sulfate & Nitrate																																																											
8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260	8021	8260																																																										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																										
Site Address <u>11720 Unaco Road, Edmonds, WA</u>				Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>				BTEX-MTBE <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/>												X use Standard S6c * Dissolved Manganese field filtered																																																							
Chevron PM Lead Consultant <u>Kim Jolitz Arcadis</u>				Composite <input type="checkbox"/>				Silica Gel Cleanup <input checked="" type="checkbox"/>																																																																			
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>				Grab <input type="checkbox"/>				Diss. <input type="checkbox"/> Method <input type="checkbox"/>																																																																			
Consultant Project Mgr. <u>Samuel Miles</u>				Total Number of Containers				WAVEPH <input type="checkbox"/>																																																																			
Consultant Phone # <u>1</u>				Total Number of Containers				WAVEPH <input type="checkbox"/>																																																																			
Sampler <u>Kelsey Franz, Kiley Zambis, Brett Tobin, Dan Gilbert</u>				Total Number of Containers				WAVEPH <input type="checkbox"/>												X use Standard S6c * Dissolved Manganese field filtered																																																							
② Sample Identification		Collected		Grab		Composite		Soil		Water		Oil		Total Number of Containers		BTEX-MTBE		Naphth				8260 full scan		Oxygenates		NWTPH GX		Lead		WAVPH		CPAHS		DISS. Manganese		DISS. Mithane		Sulfate & Nitrate																																					
<u>MW-516</u>		<u>12-9-19 1155</u>		<u>X</u>						<u>X</u>				<u>4</u>		<u>X</u>								<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>																																					
<u>MW-517</u>		<u>1152</u>		<u>X</u>						<u>X</u>				<u>4</u>		<u>X</u>								<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>																																					
<u>MW-518</u>		<u>1030</u>		<u>X</u>						<u>X</u>				<u>4</u>		<u>X</u>						<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>																																							
<u>Dup-1</u>		<u>---</u>		<u>X</u>						<u>X</u>				<u>4</u>		<u>X</u>						<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>																																							
<u>Trip Blank</u>		<u>---</u>		<u>X</u>						<u>X</u>				<u>3</u>		<u>X</u>						<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>		<u>X</u>																																							
⑦ Turnaround Time Requested (TAT) (please circle) Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by <u>[Signature]</u>				Date <u>12-9-19</u>		Time <u>14:30</u>		Received by <u>Fed Ex</u>				Date <u>12-9-19</u>		Time <u></u>																																																									
				Relinquished by				Date		Time		Received by				Date		Time																																																									
				Relinquished by				Date		Time		Received by				Date		Time																																																									
⑧ Data Package Options (please circle if required) Type I - Full Type VI (Raw Data)				Relinquished by Commerical Carrier:				Received by				Date		Time																																																													
				UPS _____ FedEx <u>X</u> Other _____				<u>Chi Wells</u>				<u>12/10/19</u>		<u>10:22</u>																																																													
				Temperature Upon Receipt <u>1.7-3.6 °C</u>				Custody Seals Intact? Yes No																																																																			



Client: Chevron

Edmonds Terminal

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/10/2019
 Number of Packages: 5 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	3
Samples Chilled:	Yes	Trip Blank Type:	HCI
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Stephanie Sanchez

Samples Chilled Details: Edmonds Terminal

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	192050133	2.6	IR	Wet	Y	Bagged	N
2	192050133	3.6	IR	Wet	Y	Bagged	N
3	192050133	3.2	IR	Wet	Y	Bagged	N
4	192050133	1.7	IR	Wet	Y	Bagged	N
5	192050133	3.5	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: December 26, 2019 12:14


Project: Edmonds Terminal

Account #: 11964
Group Number: 2078987
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
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Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-126-191211 Grab Groundwater	12/11/2019 12:55	1221381
MW-126-191211 MS Grab Groundwater	12/11/2019 12:55	1221382
MW-126-191211 MSD Grab Groundwater	12/11/2019 12:55	1221383
MW-126-191211 DUP Grab Groundwater	12/11/2019 12:55	1221384
MW-129R-191211 Grab Groundwater	12/11/2019 11:20	1221385
MW-143-191211 Grab Groundwater	12/11/2019 12:12	1221386
MW-519-191211 Grab Groundwater	12/11/2019 12:40	1221387
MW-521-191211 Grab Groundwater	12/11/2019 12:43	1221388
MW-525-191211 Grab Groundwater	12/11/2019 09:30	1221389
MW-526-191211 Grab Groundwater	12/11/2019 09:03	1221390
MW-531-191211 Grab Groundwater	12/11/2019 09:25	1221391
MW-532-191211 Grab Groundwater	12/11/2019 09:22	1221392
MW-533-191211 Grab Groundwater	12/11/2019 10:42	1221393
MW-ER-191211 Grab Groundwater	12/11/2019 11:05	1221394
LM-2-191211 Grab Groundwater	12/11/2019 10:53	1221395
DUP-2-191211 Grab Groundwater	12/11/2019	1221396
QA-T-191211 NA Water	12/11/2019	1221397

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-126-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221381
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	35.7	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:32	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:31	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 01:26	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221381
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 20:17	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 20:16	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:12	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 22:49	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:39	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:20	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:20	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221382
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	23	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.9	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,200	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	54	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	200	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	87.3	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,600	250	500	5
00228	Sulfate	14808-79-8	51,600	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:54	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:53	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 01:53	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221382
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 20:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 20:40	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:29	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:12	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:45	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:58	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:58	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221383
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	23	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	1	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,100	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	230	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 08:16	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:15	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 02:20	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:46	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:35	Timothy M Emrick	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221383
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPh-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221384
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	34.6	0.63	2.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,600	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:43	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:39	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:39	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221385
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 11:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,500	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	62 J	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	8,610	12.7	40.0	20
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	41,400	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 08:38	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:37	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221385
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 11:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 08:38	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:29	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:28	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 17:11	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:58	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 12:57	Bradley M Berlot	20
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:17	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 20:17	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221386
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	ug/l 0.2	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	ug/l 0.01	ug/l 0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	ug/l 19	ug/l 250	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	1,900 E	ug/l 3.0	ug/l 5.0	1
The reported result for Methane exceeded the calibration range of the instrument.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	ug/l 45	ug/l 100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	1,370	ug/l 3.2	ug/l 10.0	5
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	ug/l 250	ug/l 500	5
00228	Sulfate	14808-79-8	19,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 09:08	Catherine E Bachman	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221386
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:52	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:51	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 13:36	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 00:21	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 12:59	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:35	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 20:35	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221387
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	830	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	120	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	145	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	91,800	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:22	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 09:21	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221387
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:40

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 09:39	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 22:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 22:15	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 17:45	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 00:44	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:03	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:54	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 17:53	Samantha Faverio	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221388
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:43

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	14	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	216	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	77,400	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 09:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 10:09	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221388
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:43

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 22:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 14:10	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:07	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:04	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:13	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:10	Samantha Faverio	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221389
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	3	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	88 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,300	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	4,840	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	332,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:05	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221389
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 09:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 10:39	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 23:26	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 23:25	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 18:01	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:30	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 13:00	Bradley M Berlot	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:32	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:27	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221390
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	150 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	4.1 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	373	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	410 J	250	500	5
00228	Sulfate	14808-79-8	19,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:28	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:27	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 11:10	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221390
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 23:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 23:49	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 14:44	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:52	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:08	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:50	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 21:50	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221391
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	120	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,460	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	390 J	250	500	5
00228	Sulfate	14808-79-8	156,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:50	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:49	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 11:40	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221391
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 09:25

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 00:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 00:13	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:01	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 02:15	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 13:02	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 22:47	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:44	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221392
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	25	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	39.7	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	26,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:12	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:11	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 12:11	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221392
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 09:22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 00:37	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 00:36	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:18	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 04:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:49	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 23:05	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 23:05	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221393
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 10:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	N.D.	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	650	250	500	5
00228	Sulfate	14808-79-8	188,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:33	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:32	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 12:41	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221393
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 10:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:01	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:00	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:34	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 04:56	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:50	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 23:24	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 19:02	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221394
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 11:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	2 ug/l	10 ug/l	10
Reporting limits were raised due to sample foaming.						
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWT PH-Gx						
08273	NWT PH-Gx water C7-C12	n.a.	770	19 ug/l	250 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	17,000	150 ug/l	250 ug/l	50
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWT PH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	74 J	45 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	250 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	7,120	6.3 ug/l	20.0 ug/l	10
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	N.D.	1,500 ug/l	5,000 ug/l	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:56	Anita M Dale	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221394
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 11:05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:55	Anita M Dale	10
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 13:11	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:25	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:24	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/17/2019 07:09	Johanna C Kennedy	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 05:19	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/19/2019 13:27	Bradley M Berlot	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/12/2019 23:43	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/12/2019 23:43	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221395
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	2 ug/l	10 ug/l	10
Reporting limits were raised due to sample foaming.						
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWTTPH-Gx						
08273	NWTTPH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	400	3.0 ug/l	5.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	260 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	260	0.63 ug/l	2.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	254,000	15,000 ug/l	50,000 ug/l	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 12:18	Anita M Dale	10
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 12:17	Anita M Dale	10
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 13:42	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221395
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 10:53

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/17/2019 22:30	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/17/2019 22:29	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 16:25	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 05:42	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:58	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/13/2019 00:39	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/15/2019 19:19	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221396
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3.7 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	0.88 J	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	620	250	500	5
00228	Sulfate	14808-79-8	185,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 12:39	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 12:38	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 14:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221396
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:47	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 16:42	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 06:05	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 14:00	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/12/2019 19:02	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/15/2019 19:36	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-191211 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221397
ELLE Group #: 2078987
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
13130	Benzene	SW-846 8260C 71-43-2	ug/l N.D.	ug/l 0.2	ug/l 1	1
GC Volatiles						
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:10	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:09	Anita M Dale	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 19:54	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 19:53	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: F193482AA	Sample number(s): 1221381-1221383,1221385-1221397		
Benzene	N.D.	0.2	1
Batch number: 19347WAJ026	Sample number(s): 1221385-1221396		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19350WAA026	Sample number(s): 1221381-1221383		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19346A20A	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19349A20A	Sample number(s): 1221395		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 193470002A	Sample number(s): 1221381-1221383,1221385-1221396		
Methane	N.D.	3.0	5.0
Batch number: 193470024A	Sample number(s): 1221381-1221383,1221385-1221391		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193470025A	Sample number(s): 1221392-1221396		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193460705007A	Sample number(s): 1221385-1221391		
Manganese	N.D.	0.63	2.0
Batch number: 193460705008A	Sample number(s): 1221381-1221382,1221384,1221392-1221396		
Manganese	0.78 J	0.63	2.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Method Blank (continued)

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19346987109A	Sample number(s): 1221381-1221382,1221384-1221393		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19346987109B	Sample number(s): 1221394-1221396		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F193482AA	Sample number(s): 1221381-1221383,1221385-1221397								
Benzene	20	21.45			107		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19347WAJ026	Sample number(s): 1221385-1221396								
Benzo(a)anthracene	1.00	0.898			90		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.989			99		72-143		
Benzo(k)fluoranthene	1.00	0.927			93		70-134		
Chrysene	1.00	0.887			89		70-114		
Dibenz(a,h)anthracene	1.00	0.872			87		72-138		
Indeno(1,2,3-cd)pyrene	1.00	0.910			91		73-147		
Batch number: 19350WAA026	Sample number(s): 1221381-1221383								
Benzo(a)anthracene	1.00	0.861			86		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.999			100		72-143		
Benzo(k)fluoranthene	1.00	0.870			87		70-134		
Chrysene	1.00	0.857			86		70-114		
Dibenz(a,h)anthracene	1.00	0.960			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.06			106		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346A20A	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397								
NWTPH-Gx water C7-C12	1100	1051.64			96		64-131		
Batch number: 19349A20A	Sample number(s): 1221395								
NWTPH-Gx water C7-C12	1100	1050.32	1100	1072.35	95	97	64-131	2	30
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 193470002A Methane	Sample number(s): 1221381-1221383,1221385-1221396 59.83	62.06			104		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470024A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221381-1221383,1221385-1221391 600.05	272.57			45		10-115		
Batch number: 193470025A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221392-1221396 600.05	268.52	600.05	299.51	45	50	10-115	11	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193460705007A Manganese	Sample number(s): 1221385-1221391 50	53.37			107		85-115		
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396 50	52.86			106		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346987109A Nitrate Nitrogen Sulfate	Sample number(s): 1221381-1221382,1221384-1221393 750 7500	739.12 7510.13			99 100		90-110 90-110		
Batch number: 19346987109B Nitrate Nitrogen Sulfate	Sample number(s): 1221394-1221396 750 7500	739.12 7510.13			99 100		90-110 90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: F193482AA Benzene	Sample number(s): 1221381-1221383,1221385-1221397 UNSPK: 1221381 N.D.	20	22.95	20	22.54	115	113	80-120	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19350WAA026 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene	Sample number(s): 1221381-1221383 UNSPK: 1221381 N.D. N.D. N.D. N.D.	1.01 1.01 1.01 1.01	0.926 0.949 0.980 0.895	1.05 1.05 1.05 1.05	0.996 0.966 1.01 0.941	92 94 97 88	95 92 96 90	69-126 78-130 72-143 70-134	7 2 3 5	30 30 30 30

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
Chrysene	N.D.	1.01	0.903	1.05	0.958	89	91	70-114	6	30	
Dibenz(a,h)anthracene	N.D.	1.01	0.893	1.05	0.867	88	83	72-138	3	30	
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.997	1.05	0.935	98	89	73-147	6	30	
	ug/l	ug/l	ug/l	ug/l	ug/l						
Batch number: 19346A20A NWTPH-Gx water C7-C12	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397 UNSPK: 1221381	N.D.	1100	1177.54	1100	1138.21	107	103	80-120	3	30
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470002A Methane	Sample number(s): 1221381-1221383,1221385-1221396 UNSPK: 1221381	N.D.	59.83	53.79	59.83	59.3	90	99	73-125	10	30
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470024A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221381-1221383,1221385-1221391 UNSPK: 1221381	N.D.	622.46	202.63	622.46	230.86	33	37	30-115	13	20
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396 UNSPK: 1221381	35.72	50	87.25			103		70-130		
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346987109A Nitrate Nitrogen	Sample number(s): 1221381-1221382,1221384-1221393 UNSPK: 1221381	N.D.	2500	2579.64			103		90-110		
Sulfate		31043.98	25000	51600.93			82*		90-110		
Batch number: 19346987109B Nitrate Nitrogen	Sample number(s): 1221394-1221396 UNSPK: 1221394	N.D.	2500	2543.22			102		90-110		
Sulfate		N.D.	25000	26651.59			107		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max	
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396 BKG: 1221381	35.72	34.65	3	20
		ug/l	ug/l		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 19346987109A	Sample number(s): 1221381-1221382,1221384-1221393 BKG: 1221381			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	31043.98	31570.56	2	15
Batch number: 19346987109B	Sample number(s): 1221394-1221396 BKG: 1221394			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	N.D.	N.D.	0 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193482AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1221381	93	95	103	99
1221382	94	102	102	98
1221383	93	101	102	100
1221385	94	95	102	98
1221386	92	98	103	97
1221387	93	97	102	97
1221388	93	97	102	98
1221389	94	96	102	97
1221390	94	96	102	98
1221391	94	95	102	97
1221392	94	97	102	97
1221393	94	97	103	98
1221394	94	99	100	96
1221395	94	97	103	98
1221396	93	95	101	95
1221397	94	99	101	97
Blank	94	94	103	98
LCS	92	97	102	99
MS	94	102	102	98
MSD	93	101	102	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19347WAJ026

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19347WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1221385	77	66	64
1221386	74	56	59
1221387	63	59	61
1221388	61	45	60
1221389	78	39	65
1221390	77	53	69
1221391	64	11*	63
1221392	74	65	62
1221393	66	49	59
1221394	69	58	60
1221395	52	52	58
1221396	69	44	57
Blank	78	71	64
LCS	74	69	56

Limits: 48-128 18-129 30-114

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19350WAA026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1221381	68	57	51
1221382	67	64	59
1221383	73	64	58
Blank	61	58	52
LCS	63	65	52
MS	67	64	59
MSD	73	64	58

Limits: 48-128 18-129 30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19346A20A

	Trifluorotoluene-F
1221381	80
1221382	91
1221383	92
1221385	82
1221386	79
1221387	83
1221388	79
1221389	84
1221390	68

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19346A20A

	Trifluorotoluene-F
1221391	69
1221392	72
1221393	83
1221394	68
1221396	62
1221397	75
Blank	66
LCS	76
MS	91
MSD	92

Limits: 50-150

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19349A20A

	Trifluorotoluene-F
1221395	79
Blank	71
LCS	78
LCSD	81

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 193470002A

	Propene
1221381	72
1221382	89
1221383	96
1221385	85
1221386	81
1221387	96
1221388	71
1221389	91
1221390	79
1221391	84
1221392	67
1221393	71
1221394	97
1221395	67
1221396	80
Blank	107

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193470002A

	Propene
LCS	91
MS	89
MSD	96

Limits: 46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470024A

	Orthoterphenyl	Capric Acid
1221381	67	0
1221382	59	0
1221383	66	0
1221385	80	0
1221386	76	0
1221387	75	0
1221388	75	0
1221389	58	0
1221390	65	0
1221391	69	0
Blank	74	0
LCS	69	0
MS	59	0
MSD	66	0

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470025A

	Orthoterphenyl	Capric Acid
1221392	71	0
1221393	71	0
1221394	81	0
1221395	50	0
1221396	60	0
Blank	72	0
LCS	69	0
LCSD	77	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11964 Group # 2078987 Sample # 1221381-97
 For Lancaster Laboratories use only
 Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix			5 Analyses Requested										6 Remarks																	
Facility # WBS <u>Edmonds Terminal NWENVPmG00143080</u>				Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Total Number of Containers</td> <td colspan="2">8260 full scan</td> <td colspan="2">Oxygenates</td> <td colspan="2">NWTPH GX</td> <td colspan="2">NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/></td> <td colspan="2">Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/></td> <td colspan="2">WAVPH <input type="checkbox"/> WAEPH <input type="checkbox"/></td> <td colspan="2"> EPAHS 3270 SIM Diss. Methane RSK175 Sulfate + Nitrate 300.0 Diss. Manganese 200.0 </td> </tr> </table>										Total Number of Containers		8260 full scan		Oxygenates		NWTPH GX		NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/>		WAVPH <input type="checkbox"/> WAEPH <input type="checkbox"/>		EPAHS 3270 SIM Diss. Methane RSK175 Sulfate + Nitrate 300.0 Diss. Manganese 200.0		SCR #: _____	
Total Number of Containers		8260 full scan		Oxygenates		NWTPH GX		NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/>		Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/>		WAVPH <input type="checkbox"/> WAEPH <input type="checkbox"/>		EPAHS 3270 SIM Diss. Methane RSK175 Sulfate + Nitrate 300.0 Diss. Manganese 200.0																				
Site Address <u>11720 Unoco Road, Edmonds, WA</u>				Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>													<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																	
Chevron PM Lead Consultant <u>Kim Jolitz Arcadis</u>				Oil <input type="checkbox"/>																														
Consultant/Office <u>1100 Olive Way, Suite 300, Seattle WA</u>				Total Number of Containers																														
Consultant Project Mgr. <u>Samuel Miles</u>				8260 full scan																														
Consultant Phone #				8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth																														
Sampler <u>Kelsey Franz, Kiley Zauri, Brett Tobin, Dan Gilmer</u>				8260 full scan																														
2 Sample Identification			3 Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE	8021	8260	Naphth	Oxygenates	NWTPH GX	NWTPH DX	Silica Gel Cleanup	Lead	Total	Diss.	Method	WAVPH	WAEPH	EPAHS 3270 SIM	Diss. Methane RSK175	Sulfate + Nitrate 300.0	Diss. Manganese 200.0								
Collected			Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE	8021	8260	Naphth	Oxygenates	NWTPH GX	NWTPH DX	Silica Gel Cleanup	Lead	Total	Diss.	Method	WAVPH	WAEPH	EPAHS 3270 SIM	Diss. Methane RSK175	Sulfate + Nitrate 300.0	Diss. Manganese 200.0								
Date Time			Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE	8021	8260	Naphth	Oxygenates	NWTPH GX	NWTPH DX	Silica Gel Cleanup	Lead	Total	Diss.	Method	WAVPH	WAEPH	EPAHS 3270 SIM	Diss. Methane RSK175	Sulfate + Nitrate 300.0	Diss. Manganese 200.0								
MW-120 (ms/msd)			X			X	4	14	X			X		X	X								X	X	X	X								
MW-129R			X			X		14	X			X		X	X								X	X	X	X								
MW-143			X			X		14	X			X		X	X								X	X	X	X								
MW-519			X			X		14	X			X		X	X								X	X	X	X								
MW-521			X			X		14	X			X		X	X								X	X	X	X								
MW-525			X			X		13	X			X		X	X								X	X	X	X								
MW-526			X			X		14	X			X		X	X								X	X	X	X								
MW-531			X			X		14	X			X		X	X								X	X	X	X								
MW-532			X			X		14	X			X		X	X								X	X	X	X								
MW-533			X			X		14	X			X		X	X								X	X	X	X								
MW-ER			X			X		14	X			X		X	X								X	X	X	X								
LM-2			X			X		14	X			X		X	X								X	X	X	X								
DUP-2			X			X		14	X			X		X	X								X	X	X	X								
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by			Date		Time		Received by			Date		Time																		
Standard 5 day 4 day 72 hour 48 hour 24 hour				Brett Tobin			12-11-19		1530		FedEx			12-11-19		1530																		
8 Data Package Options (please circle if required)				Relinquished by Commercial Carrier:			Date		Time		Received by			Date		Time																		
Type I - Full Type VI (Raw Data)				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____							[Signature]			12/12/19		1026																		
				Temperature Upon Receipt			0.1/2psi		°C		Custody Seals Intact?			Yes		No																		

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 119104 Group # 2077207898 Sample # 1221381-97
 For Lancaster Laboratories use only
 Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																																																											
Facility #		WBS		Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> Surface Water <input type="checkbox"/> NPDES <input type="checkbox"/> Air Oil <input type="checkbox"/>	Total Number of Containers	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> BTEX-MTBE-8021</td> <td><input type="checkbox"/> 8260</td> <td><input checked="" type="checkbox"/> Naphth</td> <td colspan="3"></td> <td colspan="3"></td> <td colspan="3"></td> </tr> <tr> <td colspan="6">8260 full scan</td> <td colspan="3">Oxygenates</td> <td colspan="3">NWTPH GX</td> </tr> <tr> <td colspan="6"></td> <td colspan="3">Silica Gel Cleanup</td> <td colspan="3">Lead</td> </tr> <tr> <td colspan="6"></td> <td colspan="3">Diss.</td> <td colspan="3">Method</td> </tr> <tr> <td colspan="6"></td> <td colspan="3">WAVPH</td> <td colspan="3">WAEPH</td> </tr> </table>												<input type="checkbox"/> BTEX-MTBE-8021	<input type="checkbox"/> 8260	<input checked="" type="checkbox"/> Naphth										8260 full scan						Oxygenates			NWTPH GX									Silica Gel Cleanup			Lead									Diss.			Method									WAVPH			WAEPH			SCR #: _____	
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						WAVPH			WAEPH																																																																						
Site Address		Chevron PM		Lead Consultant		<div style="border: 1px solid black; padding: 5px;"> <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ____ oxy's on highest hit <input type="checkbox"/> Run ____ oxy's on all hits </div>																																																																									
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Sampler		Kelsey Franz, Kily Jaubi, Brett Tobin, Dan Gilbert																																																																													
2 Sample Identification			3 Collected		Grab	Composite																																																																									
Date	Time																																																																														
TRIP BLANK			-	-																																																																											
7 Turnaround Time Requested (TAT) (please circle)					Relinquished by			Date		Time		Received by			Date		Time																																																														
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Type I - Full Type VI (Raw Data)					UPS _____ FedEx _____ Other _____			12/21/19		1026		[Signature]			12/21/19		1026																																																														
					Temperature Upon Receipt			0.1 / 2.6 °C		Custody Seals Intact?			Yes		No																																																																



Client: EDMONDS TERMINAL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/12/2019
 Number of Packages: 4 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCL
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jessenia Colon Martinez

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	192050133	1.7	IR	Wet	Y	Bagged	N
2	192050133	0.1	IR	Wet	Y	Bagged	N
3	192050133	1.6	IR	Wet	Y	Bagged	N
4	192050133	2.6	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: January 07, 2020 13:26


Project: Edmonds Terminal

Account #: 11964
Group Number: 2079253
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-8R-W-191212 Grab Groundwater	12/12/2019 12:53	1222665
MW-20R-W-191212 Grab Groundwater	12/12/2019 10:00	1222666
MW-101-W-191212 Grab Groundwater	12/12/2019 11:02	1222667
MW-104-W-191212 Grab Groundwater	12/12/2019 09:52	1222668
MW-520-W-191212 Grab Groundwater	12/12/2019 10:35	1222669
MW-522-W-191212 Grab Groundwater	12/12/2019 11:03	1222670
MW-530-W-191212 Grab Groundwater	12/12/2019 11:20	1222671
MW-534-W-191212 Grab Groundwater	12/12/2019 09:43	1222672
MW-535-W-191212 Grab Groundwater	12/12/2019 09:45	1222673
DUP-3-WD-191212 Grab Groundwater	12/12/2019	1222674
DUP-4-WD-191212 Grab Groundwater	12/12/2019	1222675
QA-T-191212 NA Water	12/12/2019	1222676

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-8R-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222665
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 12:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	87	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	38.4	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 69%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	54,200	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-8R-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222665
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 12:53

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193532AA	12/19/2019 18:37	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193532AA	12/19/2019 18:36	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 02:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/17/2019 23:33	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/17/2019 23:32	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/16/2019 18:32	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 06:28	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 13:01	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115A	12/13/2019 18:26	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/15/2019 13:02	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-20R-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222666
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 10:00

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	1	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.01 J	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial.						
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	34 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	630	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	744	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
The holding time was not met.						
00228	Sulfate	14808-79-8	778,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-20R-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222666
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 10:00

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 17:33	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 17:32	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 02:42	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/17/2019 23:56	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/17/2019 23:55	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 14:47	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 06:51	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 13:05	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	2	19347720115A	12/15/2019 16:45	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 22:10	Samantha Faverio	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222667
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 11:02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	470	19	250	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,700	60	100	20
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	12,700	13.1	41.2	20
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 67%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	14,800	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-101-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222667
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 11:02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 17:54	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 17:53	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 03:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 00:20	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 00:19	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 16:00	Johanna C Kennedy	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 07:14	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 13:14	Patrick J Engle	20
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115B	12/13/2019 15:35	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115B	12/15/2019 09:54	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222668
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 09:52

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	52 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	230	6.0	10	2
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	280	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	130 J	100	250	1
Trial ID: RE						
12917	DX DRO C12-C24 w/ SiGel	n.a.	130	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
<p>The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken: The sample was re-extracted within the method required holding time and the sample surrogate is within the qc limits. The recovery for the method blank surrogate(s) is outside the QC acceptance limits as noted on the QC Summary in trial 2. The response for the DX range in the continuing calibration verification standard is outside the QC acceptance limits low in trial 2. Both trials are reported.</p>						
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1,870	3.3	10.3	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
The holding time was not met.						
00228	Sulfate	14808-79-8	132,000	6,000	20,000	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-104-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222668
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 09:52

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 18:16	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 18:15	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 03:42	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 00:44	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 00:43	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 15:24	Johanna C Kennedy	2
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 07:37	Bridget Kovacs	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	2-RE	193600009A	12/31/2019 21:13	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	2	193600009A	12/26/2019 17:30	Laura Duquette	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511601A	12/19/2019 13:07	Bradley M Berlot	5
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511601	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	2	19347720115A	12/15/2019 16:28	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 21:51	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-520-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222669
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 10:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1.2 J	0.65	2.1	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	510	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 69%. Sample was reanalyzed past hold on 12/15/2019 with a result of 400 ug/l and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	410,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-520-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222669
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 10:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 18:38	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 18:37	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 04:13	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 01:32	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 01:31	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/16/2019 19:44	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 07:59	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 13:02	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115A	12/14/2019 11:37	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 19:40	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222670
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 11:03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	58	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	170 J	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	127	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 67%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	297,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-522-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222670
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 11:03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 19:00	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 18:59	Alexander D Sechrist	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 04:43	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 01:56	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 01:55	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 13:34	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/20/2019 23:45	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511601A	12/18/2019 14:17	Bradley M Berlot	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511601	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115B	12/13/2019 15:52	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115B	12/19/2019 14:33	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-530-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222671
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 11:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	0.01 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	920	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	313	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 67%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	1,210,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: MW-530-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222671
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 11:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193582AA	12/24/2019 14:07	Stephen C Nolte	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193582AA	12/24/2019 14:06	Stephen C Nolte	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 05:13	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 02:19	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 02:18	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 15:42	Johanna C Kennedy	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/21/2019 00:07	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 12:51	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115B	12/13/2019 16:27	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115B	12/19/2019 15:32	Samantha Faverio	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222672
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 09:43

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	4,500	150	250	50
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,590	6.5	20.6	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
The holding time was not met.						
00228	Sulfate	14808-79-8	510,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193582AA	12/24/2019 14:28	Stephen C Nolte	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193582AA	12/24/2019 14:27	Stephen C Nolte	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 08:24	Catherine E Bachman	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-534-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222672
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 09:43

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 02:43	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 02:42	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 18:49	Johanna C Kennedy	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/21/2019 00:30	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511601A	12/19/2019 13:11	Bradley M Berlot	10
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511601	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	2	19347720115A	12/15/2019 15:19	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 21:13	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222673
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019 09:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	320	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	10	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	860	250	500	5
The holding time was not met.						
00228	Sulfate	14808-79-8	87,300	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193582AA	12/24/2019 14:50	Stephen C Nolte	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193582AA	12/24/2019 14:49	Stephen C Nolte	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 08:54	Catherine E Bachman	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-535-W-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222673
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40

Collection Date/Time: 12/12/2019 09:45

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 03:07	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 03:06	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/16/2019 21:14	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/21/2019 00:52	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 12:39	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	2	19347720115A	12/15/2019 16:10	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 21:32	Samantha Faverio	10

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-WD-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222674
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	62	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	121	0.65	2.1	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 69%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	288,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: DUP-3-WD-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222674
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193582AA	12/24/2019 15:12	Stephen C Nolte	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193582AA	12/24/2019 15:11	Stephen C Nolte	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 09:24	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 03:31	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 03:30	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500008A	12/17/2019 13:53	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/21/2019 01:15	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 12:53	Patrick J Engle	1
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115A	12/14/2019 11:54	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/17/2019 19:58	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222675
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
		SW-846 8270D SIM	ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	510	19	250	1
GC Miscellaneous						
		RSKSOP-175 modified	ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,600	30	50	10
GC Petroleum Hydrocarbons w/Si						
		ECY 97-602 NWTPH-Dx modified	ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	11,100	13.1	41.2	20
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
Sample was originally analyzed within the 48 hour holding time, however bracketing continuing calibration verification standards (CCV) were outside of the 90-110% acceptance window with recoveries of 67% and 69%. Sample was reanalyzed past hold on 12/15/2019 with a result of ND and had acceptable bracketing CCV's.						
00228	Sulfate	14808-79-8	14,500	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

*=This limit was used in the evaluation of the final result

Sample Description: DUP-4-WD-191212 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222675
ELLE Group #: 2079253
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193582AA	12/24/2019 15:34	Stephen C Nolte	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193582AA	12/24/2019 15:33	Stephen C Nolte	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAN026	12/19/2019 09:54	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAN026	12/16/2019 08:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/18/2019 03:55	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/18/2019 03:54	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193500010A	12/17/2019 16:03	Johanna C Kennedy	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470026A	12/21/2019 01:38	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470026A	12/16/2019 09:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193521511602A	12/21/2019 13:16	Patrick J Engle	20
15116	ICPMS filtered no-digest 200.8	EPA 200.8 rev 5.4	1	193521511602	12/18/2019 06:30	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19347720115A	12/14/2019 12:45	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19347720115A	12/15/2019 14:28	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-191212 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1222676
ELLE Group #: 2079253
Matrix: Water

Project Name: Edmonds Terminal

Submittal Date/Time: 12/13/2019 10:40
Collection Date/Time: 12/12/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
		SW-846 8260C	ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC Volatiles						
		ECY 97-602 NWTPH-Gx	ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193541AA	12/20/2019 11:22	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193541AA	12/20/2019 11:21	Alexander D Sechrist	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/17/2019 22:06	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/17/2019 22:05	Erin E Durkaj	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: F193532AA Benzene	Sample number(s): 1222665 N.D.	0.2	1
Batch number: F193541AA Benzene	Sample number(s): 1222666-1222670,1222676 N.D.	0.2	1
Batch number: F193582AA Benzene	Sample number(s): 1222671-1222675 N.D.	0.2	1
Batch number: 19347WAN026 Benzo(a)anthracene	Sample number(s): 1222665-1222675 N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19349A20A NWTPH-Gx water C7-C12	Sample number(s): 1222665-1222676 N.D.	19	250
Batch number: 193500008A Methane	Sample number(s): 1222665-1222674 N.D.	3.0	5.0
Batch number: 193500010A Methane	Sample number(s): 1222675 N.D.	3.0	5.0
Batch number: 193470025A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222665-1222669 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193470026A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222670-1222675 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193600009A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222668 N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193521511601A Manganese	Sample number(s): 1222668,1222670,1222672 N.D.	0.65	2.1
Batch number: 193521511602A Manganese	Sample number(s): 1222665-1222667,1222669,1222671,1222673-1222675 N.D.	0.65	2.1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Method Blank (continued)

Analysis Name	Result ug/l	MDL** ug/l	LOQ ug/l
Batch number: 19347720115A	Sample number(s): 1222665-1222666,1222668-1222669,1222672-1222675		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19347720115B	Sample number(s): 1222667,1222670-1222671		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F193532AA Benzene	Sample number(s): 1222665				94	91	80-120	3	30
Batch number: F193541AA Benzene	Sample number(s): 1222666-1222670,1222676				103		80-120		
Batch number: F193582AA Benzene	Sample number(s): 1222671-1222675				112	112	80-120	0	30
Batch number: 19347WAN026 Benzo(a)anthracene	Sample number(s): 1222665-1222675				91		69-126		
Benzo(a)pyrene					96		78-130		
Benzo(b)fluoranthene					98		72-143		
Benzo(k)fluoranthene					95		70-134		
Chrysene					89		70-114		
Dibenz(a,h)anthracene					77		72-138		
Indeno(1,2,3-cd)pyrene					83		73-147		
Batch number: 19349A20A NWTPH-Gx water C7-C12	Sample number(s): 1222665-1222676				95	97	64-131	2	30
Batch number: 193500008A Methane	Sample number(s): 1222665-1222674				100	102	85-115	1	20
Batch number: 193500010A Methane	Sample number(s): 1222675				102		85-115		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 193470025A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222665-1222669								
	600.05	268.52	600.05	299.51	45	50	10-115	11	20
Batch number: 193470026A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222670-1222675								
	600.05	234.98	600.05	264.2	39	44	10-115	12	20
Batch number: 193600009A DX DRO C12-C24 w/ SiGel	Sample number(s): 1222668								
	600.05	188.28	600.05	194.48	31	32	10-115	3	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193521511601A Manganese	Sample number(s): 1222668,1222670,1222672								
	50	51.24			102		85-115		
Batch number: 193521511602A Manganese	Sample number(s): 1222665-1222667,1222669,1222671,1222673-1222675								
	50	48.31			97		85-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19347720115A Nitrate Nitrogen	Sample number(s): 1222665-1222666,1222668-1222669,1222672-1222675								
	750	704.38			94		90-110		
Sulfate	7500	7071.48			94		90-110		
Batch number: 19347720115B Nitrate Nitrogen	Sample number(s): 1222667,1222670-1222671								
	750	704.38			94		90-110		
Sulfate	7500	7071.48			94		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 193521511601A Manganese	Sample number(s): 1222668,1222670,1222672 UNSPK: 1222670									
	127.09	52	181.72			105		70-130		
Batch number: 193521511602A Manganese	Sample number(s): 1222665-1222667,1222669,1222671,1222673-1222675 UNSPK: 1222673									
	9.98	52	56.35			89		70-130		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19347720115A Nitrate Nitrogen	Sample number(s): 1222665-1222666,1222668-1222669,1222672-1222675 UNSPK: 1222674									
	N.D.	2500	2557.18			102		90-110		
Sulfate	287693.98	250000	565419.69			111*		90-110		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 19347720115B	Sample number(s): 1222667,1222670-1222671 UNSPK: 1222670									
Nitrate Nitrogen	N.D.	2500	2643.45			106		90-110		
Sulfate	296659.51	250000	535017.67			95		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 193521511601A	Sample number(s): 1222668,1222670,1222672 BKG: 1222670			
Manganese	127.09	127.5	0	20
Batch number: 193521511602A	Sample number(s): 1222665-1222667,1222669,1222671,1222673-1222675 BKG: 1222673			
Manganese	9.98	10.08	1 (1)	20
Batch number: 19347720115A	Sample number(s): 1222665-1222666,1222668-1222669,1222672-1222675 BKG: 1222674			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	287693.98	289299.37	1	15
Batch number: 19347720115B	Sample number(s): 1222667,1222670-1222671 BKG: 1222670			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	296659.51	296876.35	0	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193532AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1222665	93	96	100	99
Blank	93	97	101	99
LCS	93	99	102	101

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193532AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
LCSD	92	99	102	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: Benzene
Batch number: F193541AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1222666	97	98	101	100
1222667	94	98	100	102
1222668	96	98	101	100
1222669	96	98	101	100
1222670	96	96	99	99
1222676	97	100	103	100
Blank	94	97	102	100
LCS	95	99	102	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: Benzene
Batch number: F193582AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1222671	95	97	98	99
1222672	95	97	99	99
1222673	95	98	99	99
1222674	94	99	99	98
1222675	95	99	99	98
Blank	95	96	98	99
LCS	94	101	98	99
LCSD	94	96	97	99
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19347WAN026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1222665	59	49	49
1222666	73	16*	50
1222667	75	36	60
1222668	74	64	59
1222669	64	58	57
1222670	62	61	55
1222671	55	53	49

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19347WAN026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1222672	68	61	58
1222673	72	59	52
1222674	70	64	50
1222675	57	66	56
Blank	70	63	56
LCS	74	69	62
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19349A20A

	Trifluorotoluene-F
1222665	75
1222666	70
1222667	78
1222668	82
1222669	75
1222670	81
1222671	69
1222672	84
1222673	79
1222674	81
1222675	64
1222676	70
Blank	71
LCS	78
LCSD	81

Limits: 50-150

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 193470025A

	Orthoterphenyl	Capric Acid
1222665	71	0
1222666	63	0
1222667	66	0
1222668	47*	0
1222669	61	0
Blank	72	0
LCS	69	0
LCSD	77	0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470025A

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470026A

	Orthoterphenyl	Capric Acid
1222670	76	0
1222671	61	0
1222672	68	0
1222673	80	0
1222674	71	0
1222675	74	0

Limits: 50-150 0-1

	Orthoterphenyl
Blank	69
LCS	67
LCSD	73

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193500008A

	Propene
1222665	62
1222666	92
1222667	102
1222668	95
1222669	81
1222670	76
1222671	95
1222672	105
1222673	69
1222674	68
Blank	106
LCS	105
LCSD	104

Limits: 46-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193500010A

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 01/07/2020 13:26

Group Number: 2079253

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 193500010A

	Propene
1222675	90
Blank	103
LCS	103

Limits: 46-135

Analysis Name: NWTPH-Dx water w/Si Gel

Batch number: 193600009A

	Orthoterphenyl	Capric Acid
1222668RE	70	0
Blank	25*	0
LCS	60	0
LCSD	55	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11964

Group # 609253 For Lancaster Laboratories use only Sample # 122665-76
Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks		
Facility # <u>Edmonds Terminal NWENVPM600143080</u>			Soil <input type="checkbox"/> Sediment <input type="checkbox"/>			Total Number of Containers BTEX-MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH GX NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method WAPPH <input type="checkbox"/> WAEPH <input type="checkbox"/> ePAMS 8270 SIM Diss Methane Psk 175 Sulfate + Nitrate 3000 Diss. Manganese 2008										SCR #: _____		
Site Address <u>11720 Unoco Rd, Edmonds WA</u>			Potable <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>													Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy's on highest hit <input type="checkbox"/> Run ___ oxy's on all hits <input type="checkbox"/>		
Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Aracdis</u>			Oil <input type="checkbox"/> Air <input type="checkbox"/>															
Consultant/Office <u>1100 Olive Way, Seattle WA 98101</u>			Composite <input type="checkbox"/>															
Consultant Project Mgr. <u>Samuel Miles</u>			Grab <input type="checkbox"/>															
Sampler <u>Kelsey Franz, Dan Gilbert, Brett Tobin</u>			Soil <input type="checkbox"/>															
2 Sample Identification			3															
		Collected																
		Date	Time	Grab	Composite													
MW-8P		12-12-14	1253	X		X				X	X	X	X	X	X	X	X	* use Standard SGC * Dissolved Manganese field filtered
MW-20R			1000	X		X				X	X	X	X	X	X	X	X	
MW-101			1102	X		X				X	X	X	X	X	X	X	X	
MW-104			0952	X		X				X	X	X	X	X	X	X	X	
MW-520			1035	X		X				X	X	X	X	X	X	X	X	
MW-522			1103	X		X				X	X	X	X	X	X	X	X	
MW-530			1120	X		X				X	X	X	X	X	X	X	X	
MW-534			0943	X		X				X	X	X	X	X	X	X	X	
MW-535			0945	X		X				X	X	X	X	X	X	X	X	
Dup-3			---	X		X				X	X	X	X	X	X	X	X	
Dup-4			---	X		X				X	X	X	X	X	X	X	X	
Tnp Blank			---	X		X				X	X	X	X	X	X	X	X	
7 Turnaround Time Requested (TAT) (please circle)			Relinquished by <u>[Signature]</u>			Date <u>12-12-14</u> Time <u>1530</u>		Received by <u>FedEx</u>			Date <u>12-12-14</u> Time <u>1530</u>							
Standard <input checked="" type="checkbox"/> 5 day 4 day 72 hour 48 hour 24 hour			Relinquished by _____			Date _____ Time _____		Received by _____			Date _____ Time _____							
8 Data Package Options (please circle if required)			Relinquished by Commercial Carrier:			Received by <u>[Signature]</u>			Date <u>12/13/14</u> Time <u>1040</u>									
Type I - Full Type VI (Raw Data)			UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			Temperature Upon Receipt <u>0.2-1.8</u> °C			Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									



Client: Chevron c/o Arcadis

Edmonds Terminal

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/13/2019
 Number of Packages: 3 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCl
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Nicole Reiff

Samples Chilled Details: Edmonds Terminal

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	192050133	0.3	IR	Wet	Y	Bagged	N
2	192050133	0.2	IR	Wet	Y	Bagged	N
3	192050133	1.2	IR	Wet	Y	Bagged	N

Container Quantity Discrepancy Details: Edmonds Terminal

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
MW-20R	15	14	Metals Batch QC
MW-535	15	14	Metals Batch QC

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: December 26, 2019 12:36


Project: Edmonds Terminal

Account #: 11964
Group Number: 2078384
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
Electronic Copy To ARCADIS U.S., Inc.
Electronic Copy To Arcadis
Electronic Copy To Arcadis
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Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-139R-W-191209 Grab Groundwater	12/09/2019 12:20	1219083
MW-502-W-191209 Grab Groundwater	12/09/2019 13:43	1219084
MW-503-W-191209 Grab Groundwater	12/09/2019 14:53	1219085
MW-504-W-191209 Grab Groundwater	12/09/2019 15:22	1219086
MW-505-W-191209 Grab Groundwater	12/09/2019 13:42	1219087
MW-506-W-191209 Grab Groundwater	12/09/2019 14:55	1219088
MW-507-W-191209 Grab Groundwater	12/09/2019 15:20	1219089
MW-509-W-191209 Grab Groundwater	12/09/2019 13:50	1219090
MW-511-W-191209 Grab Groundwater	12/09/2019 12:03	1219091
MW-512-W-191209 Grab Groundwater	12/09/2019 10:23	1219092
MW-512-W-191209 MS Grab Groundwater	12/09/2019 10:23	1219093
MW-512-W-191209 MSD Grab Groundwater	12/09/2019 10:23	1219094
MW-512-W-191209 DUP Grab Groundwater	12/09/2019 10:23	1219095
MW-513-W-191209 Grab Groundwater	12/09/2019 10:42	1219096
MW-514-W-191209 Grab Groundwater	12/09/2019 10:35	1219097
MW-515-W-191209 Grab Groundwater	12/09/2019 13:15	1219098
MW-516-W-191209 Grab Groundwater	12/09/2019 11:55	1219099
MW-517-W-191209 Grab Groundwater	12/09/2019 11:52	1219100
MW-518-W-191209 Grab Groundwater	12/09/2019 10:30	1219101
DUP-1-WD-191209 Grab Groundwater	12/09/2019	1219102
QA-T-191209 NA Water	12/09/2019	1219103

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-139R-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219083
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	11	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	1.6 J	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	480 J	250	500	5
00228	Sulfate	14808-79-8	135,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 14:16	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:15	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAB026	12/13/2019 16:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAB026	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-139R-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219083
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 12:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:57	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:56	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:38	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 14:49	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:46	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 20:03	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 22:23	Samantha Faverio	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219084
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:43

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3.5 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	261	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	21,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 14:38	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:37	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAB026	12/13/2019 17:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAB026	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-502-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219084
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:43

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 00:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 00:21	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:53	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:12	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:52	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 20:19	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 20:19	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219085
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	67	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	489	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	25,500	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 14:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 21:00	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-503-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219085
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:53

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 00:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 00:47	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 13:08	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:35	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 12:54	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:06	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 21:06	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219086
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	160	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	641	1.3	4.0	2
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	960	250	500	5
00228	Sulfate	14808-79-8	259,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:21	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 15:20	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 22:41	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-504-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219086
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 15:22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 01:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 01:13	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 13:23	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 15:58	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:00	Janeyah Rivers-Hamilton	2
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:21	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/11/2019 18:32	Niyati Desai	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219087
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	22 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,000	30	50	10
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,670	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	253,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 15:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 15:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 23:08	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-505-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219087
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 13:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 01:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 01:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 13:15	Esther Kathryn Lane	10
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 16:20	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:08	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:37	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 22:54	Samantha Faverio	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219088
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	11,000	150	250	50
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	7,400	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	142,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:05	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 22:31	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-506-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219088
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 14:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 02:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 02:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 13:32	Esther Kathryn Lane	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 16:43	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:09	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 21:52	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/11/2019 18:47	Niyati Desai	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219089
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.02 J	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.02 J	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.02 J	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.02 J	0.01	0.05	1
14244	Chrysene	218-01-9	0.02 J	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.02 J	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	53	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	945	1.3	4.0	2
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	134,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:28	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:27	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 23:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-507-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219089
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 15:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/12/2019 02:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/12/2019 02:30	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:06	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:06	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:11	Janeyah Rivers-Hamilton	2
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076112B	12/10/2019 22:08	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076112B	12/10/2019 23:25	Samantha Faverio	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219090
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	91	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	440	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	180	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	410 J	250	500	5
00228	Sulfate	14808-79-8	137,000	30,000	100,000	100

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 16:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 16:48	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 23:31	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-509-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219090
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:50

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 18:21	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 18:20	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:22	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:29	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/13/2019 14:00	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:30	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 12:50	Niyati Desai	100

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219091
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2.4	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	870	250	500	5
00228	Sulfate	14808-79-8	24,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 17:11	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 17:10	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 00:02	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-511-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219091
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 12:03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 18:47	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 18:46	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:37	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450019A	12/16/2019 17:52	Bridget Kovacs	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450019A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/13/2019 14:01	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:45	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 01:45	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219092
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	61 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	990	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,730	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	83,400	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 10:17	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:16	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 17:33	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219092
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 19:13	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 19:12	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:25	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:02	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:51	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 00:43	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:14	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219093
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	24	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.5	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.6	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.7	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,500	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	890 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	280	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,000	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,600	250	500	5
00228	Sulfate	14808-79-8	136,000	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 10:39	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:38	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 19:59	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219093
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 19:38	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 19:37	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:07	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:24	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:59	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 01:14	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:45	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219094
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	24	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.6	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	0.9	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.7	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,600	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	930 E	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	250	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 10:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/13/2019 20:30	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:04	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:03	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 12:23	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 17:47	Timothy M Emrick	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219094
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-512-W-191209 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219095
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:23

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	3,050	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	83,900	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	193440705003A	12/11/2019 20:56	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705003	12/11/2019 03:23	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 00:58	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 11:30	Niyati Desai	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219096
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	29 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	240	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	6,310	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	529,000	150,000	500,000	500

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:22	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 11:21	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/20/2019 23:36	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-513-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219096
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:29	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 15:52	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:10	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:12	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:01	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:05	Niyati Desai	500

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219097
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:35

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	38 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	600	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	49	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,450	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	264,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 11:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 11:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 01:03	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-514-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219097
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:35

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 20:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 20:54	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:42	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:14	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:16	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:21	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219098
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 13:15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	700	15	25	5
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	4,060	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	501,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:05	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:03	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-515-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219098
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 13:15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 21:22	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 21:21	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/12/2019 12:59	Esther Kathryn Lane	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 18:55	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:19	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 03:34	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:52	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219099
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	130	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	51	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,930	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	430 J	250	500	5
00228	Sulfate	14808-79-8	222,000	60,000	200,000	200

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:27	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:26	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:31	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-516-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219099
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 21:47	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 21:46	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 16:38	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 19:18	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193440705004A	12/17/2019 13:20	Janeyah Rivers-Hamilton	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193440705004	12/12/2019 14:40	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 03:18	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 13:37	Niyati Desai	200

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219100
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 11:52

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	110	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	5,380	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	710	250	500	5
00228	Sulfate	14808-79-8	113,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 12:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 12:48	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 00:58	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	2	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-517-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219100
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 11:52

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 22:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450002A	12/11/2019 16:53	Esther Kathryn Lane	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 19:41	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/16/2019 12:22	Janeyah Rivers-Hamilton	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 02:32	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/12/2019 12:01	Niyati Desai	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219101
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019 10:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	820	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,100	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	52	120	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	120	290	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	785	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	32,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 13:10	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 13:09	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 03:04	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-518-W-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219101
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22

Collection Date/Time: 12/09/2019 10:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450003A	12/12/2019 12:20	Esther Kathryn Lane	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 20:04	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/13/2019 13:33	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344720109A	12/10/2019 19:31	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344720109A	12/10/2019 19:31	Samantha Faverio	5

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219102
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	840	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	2,200	60	100	20
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	765	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,300	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 13:32	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 13:31	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19345WAE026	12/14/2019 03:34	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19345WAE026	12/12/2019 09:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-WD-191209 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219102
ELLE Group #: 2078384
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 23:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 23:29	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193450003A	12/12/2019 12:38	Esther Kathryn Lane	20
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193450020A	12/18/2019 20:26	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193450020A	12/12/2019 02:00	Mathias Okpo	1
06037	Manganese	EPA 200.8 rev 5.4	1	193450705001A	12/13/2019 13:37	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193450705001	12/11/2019 14:20	JoElla L Rice	1
00368	Nitrate Nitrogen	EPA 300.0	1	19344076212A	12/11/2019 04:05	Samantha Faverio	5
00228	Sulfate	EPA 300.0	1	19344076212A	12/11/2019 12:34	Niyati Desai	5

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-191209 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1219103
ELLE Group #: 2078384
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 12/10/2019 10:22
Collection Date/Time: 12/09/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
13130	Benzene	SW-846 8260C 71-43-2	ug/l N.D.	ug/l 0.2	ug/l 1	1
GC Volatiles						
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193471AA	12/13/2019 09:55	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193471AA	12/13/2019 09:54	Anita M Dale	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19345A94A	12/11/2019 17:55	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19345A94A	12/11/2019 17:54	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103		
Benzene	N.D.	0.2	1
Batch number: 19345WAB026	Sample number(s): 1219083-1219084		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19350WAA026	Sample number(s): 1219086-1219087,1219096,1219098-1219100		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100		
Methane	N.D.	3.0	5.0
Batch number: 193450003A	Sample number(s): 1219101-1219102		
Methane	N.D.	3.0	5.0
Batch number: 193450019A	Sample number(s): 1219083-1219091		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193440705003A	Sample number(s): 1219083-1219085,1219092-1219093,1219095		
Manganese	N.D.	0.63	2.0
Batch number: 193440705004A	Sample number(s): 1219086-1219091,1219096-1219099		
Manganese	N.D.	0.63	2.0
Batch number: 193450705001A	Sample number(s): 1219100-1219102		
Manganese	N.D.	0.63	2.0
Batch number: 19344076112B	Sample number(s): 1219083-1219089		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19344076212A	Sample number(s): 1219090-1219093,1219095-1219100,1219102		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19344720109A	Sample number(s): 1219101		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103								
Benzene	20	23.78			119		80-120		
Batch number: 19345WAB026	Sample number(s): 1219083-1219084								
Benzo(a)anthracene	1.00	0.869	1.00	0.854	87	85	69-126	2	30
Benzo(a)pyrene	1.00	0.922	1.00	0.914	92	91	78-130	1	30
Benzo(b)fluoranthene	1.00	0.945	1.00	0.923	95	92	72-143	2	30
Benzo(k)fluoranthene	1.00	0.921	1.00	0.892	92	89	70-134	3	30
Chrysene	1.00	0.860	1.00	0.851	86	85	70-114	1	30
Dibenz(a,h)anthracene	1.00	0.861	1.00	0.853	86	85	72-138	1	30
Indeno(1,2,3-cd)pyrene	1.00	0.921	1.00	0.916	92	92	73-147	1	30
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102								
Benzo(a)anthracene	1.00	0.940			94		69-126		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	1.00	0.985			99		78-130		
Benzo(b)fluoranthene	1.00	1.02			102		72-143		
Benzo(k)fluoranthene	1.00	1.00			100		70-134		
Chrysene	1.00	0.918			92		70-114		
Dibenz(a,h)anthracene	1.00	0.962			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.03			103		73-147		
Batch number: 19350WAA026	Sample number(s): 1219086-1219087,1219096,1219098-1219100								
Benzo(a)anthracene	1.00	0.861			86		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.999			100		72-143		
Benzo(k)fluoranthene	1.00	0.870			87		70-134		
Chrysene	1.00	0.857			86		70-114		
Dibenz(a,h)anthracene	1.00	0.960			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.06			106		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103								
NWTPH-Gx water C7-C12	1100	1407.86			128		64-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100								
Methane	59.83	55.02			92		85-115		
Batch number: 193450003A	Sample number(s): 1219101-1219102								
Methane	59.83	53.6	59.83	62.31	90	104	85-115	15	20
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450019A	Sample number(s): 1219083-1219091								
DX DRO C12-C24 w/ SiGel	600.05	190.54	600.05	186.38	32	31	10-115	2	20
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102								
DX DRO C12-C24 w/ SiGel	600.05	347.15			58		10-115		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193440705003A	Sample number(s): 1219083-1219085,1219092-1219093,1219095								
Manganese	50	51.44			103		85-115		
Batch number: 193440705004A	Sample number(s): 1219086-1219091,1219096-1219099								
Manganese	50	49.39			99		85-115		
Batch number: 193450705001A	Sample number(s): 1219100-1219102								
Manganese	50	48.07			96		85-115		
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19344076112B	Sample number(s): 1219083-1219089								
Nitrate Nitrogen	750	716.93			96		90-110		
Sulfate	7500	7548.01			101		90-110		
Batch number: 19344076212A	Sample number(s): 1219090-1219093,1219095-1219100,1219102								
Nitrate Nitrogen	750	707.42			94		90-110		
Sulfate	7500	7468.63			100		90-110		
Batch number: 19344720109A	Sample number(s): 1219101								
Nitrate Nitrogen	750	765.05			102		90-110		
Sulfate	7500	7622.49			102		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: F193471AA	Sample number(s): 1219083-1219094,1219096-1219103 UNSPK: 1219092									
Benzene	N.D.	20	24.43	20	23.93	122*	120	80-120	2	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345WAE026	Sample number(s): 1219085,1219088-1219094,1219097,1219101-1219102 UNSPK: 1219092									
Benzo(a)anthracene	N.D.	1.06	0.948	1.04	0.954	89	92	69-126	1	30
Benzo(a)pyrene	N.D.	1.06	0.451	1.04	0.626	43*	60*	78-130	33*	30
Benzo(b)fluoranthene	N.D.	1.06	0.918	1.04	0.944	87	91	72-143	3	30
Benzo(k)fluoranthene	N.D.	1.06	0.826	1.04	0.853	78	82	70-134	3	30
Chrysene	N.D.	1.06	0.900	1.04	0.896	85	86	70-114	0	30
Dibenz(a,h)anthracene	N.D.	1.06	0.603	1.04	0.698	57*	67*	72-138	15	30
Indeno(1,2,3-cd)pyrene	N.D.	1.06	0.695	1.04	0.927	66*	89	73-147	29	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19345A94A	Sample number(s): 1219083-1219094,1219096-1219103 UNSPK: 1219092									
NWTPH-Gx water C7-C12	60.78	1100	1538.85	1100	1586.77	134*	139*	80-120	3	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450002A	Sample number(s): 1219083-1219094,1219096-1219100 UNSPK: 1219092									
Methane	990.45	59.83	889.05	59.83	928.92	-168 (2)	-102 (2)	73-125	4	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193450020A	Sample number(s): 1219092-1219094,1219096-1219102 UNSPK: 1219092									

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
DX DRO C12-C24 w/ SiGel	N.D.	655.07	280.68	641.08	251.35	43	39	30-115	11	20
Batch number: 193440705003A Manganese	2729.27	50	3000.11				542 (2)	70-130		
Batch number: 193440705004A Manganese	640.99	50	688.13				94 (2)	70-130		
Batch number: 19344076212A Nitrate Nitrogen	N.D.	2500	2598.69				104	90-110		
Sulfate	83427.31	50000	136305.63				106	90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 193440705003A Manganese	2729.27	3047.98	11	20
Batch number: 193440705004A Manganese	640.99	646.54	1	20
Batch number: 19344076212A Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	83427.31	83871.03	1	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1219083	94	95	104	98
1219084	95	94	103	99
1219085	94	96	103	98
1219086	95	96	103	98
1219087	94	97	103	100
1219088	95	99	104	99
1219089	95	96	103	97
1219090	96	95	104	99
1219091	95	96	103	98
1219092	94	98	103	98
1219093	94	97	102	101
1219094	93	100	104	100
1219096	95	99	103	99
1219097	94	94	103	100
1219098	94	97	102	98
1219099	94	97	104	100
1219100	95	95	102	98
1219101	95	95	103	102
1219102	95	96	104	101
1219103	93	96	103	99
Blank	96	93	103	99
LCS	96	99	103	100
MS	94	97	102	101
MSD	93	100	104	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19345WAB026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219083	65	56	49
1219084	63	54	49
Blank	78	68	52
LCS	76	69	65
LCSD	73	68	63
Limits:	48-128	18-129	30-114

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19345WAE026

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19345WAE026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219085	67	50	52
1219088	78	39	65
1219089	62	46	50
1219090	71	36	56
1219091	66	60	53
1219092	57	24	63
1219093	58	26	62
1219094	70	39	60
1219097	71	19	63
1219101	55	32	53
1219102	60	35	64
Blank	75	67	62
LCS	71	68	56
MS	58	26	62
MSD	70	39	60

Limits: 48-128 18-129 30-114

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19350WAA026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1219086	69	45	55
1219087	75	49	55
1219096	74	33	54
1219098	69	16*	52
1219099	70	26	54
1219100	67	33	51
Blank	61	58	52
LCS	63	65	52

Limits: 48-128 18-129 30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19345A94A

	Trifluorotoluene-F
1219083	90
1219084	99
1219085	88
1219086	93
1219087	90
1219088	88
1219089	93

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19345A94A

	Trifluorotoluene-F
1219090	101
1219091	101
1219092	92
1219093	104
1219094	106
1219096	87
1219097	88
1219098	88
1219099	98
1219100	96
1219101	88
1219102	90
1219103	91
Blank	90
LCS	102
MS	104
MSD	106

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 193450002A

	Propene
1219083	70
1219084	72
1219085	55
1219086	67
1219087	103
1219088	109
1219089	64
1219090	56
1219091	79
1219092	91
1219093	68
1219094	72
1219096	69
1219097	92
1219098	96
1219099	78
1219100	79
Blank	99
LCS	94

*- Outside of specification

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193450002A

	Propene
MS	68
MSD	72
Limits:	46-135

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193450003A

	Propene
1219101	107
1219102	108
Blank	97
LCS	94
LCSD	84
Limits:	46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450019A

	Orthoterphenyl	Capric Acid
1219083	59	0
1219084	63	0
1219085	59	0
1219086	61	0
1219087	59	0
1219088	60	0
1219089	58	0
1219090	60	0
1219091	66	0
Limits:	50-150	0-1

	Orthoterphenyl
Blank	64
LCS	64
LCSD	63
Limits:	50-150

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450020A

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

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Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:36

Group Number: 2078384

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193450020A

	Orthoterphenyl	Capric Acid
1219092	66	0
1219093	70	0
1219094	66	0
1219096	66	0
1219097	76	0
1219098	61	0
1219099	72	0
1219100	70	0
1219101	71	0
1219102	70	0
Blank	76	0
LCS	74	0
MS	70	0
MSD	66	0
Limits:	50-150	0-1

*- Outside of specification

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(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 11964

For Eurofins Lancaster Laboratories Environmental use only

Group # 2078384 Sample # 1219083-103

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks									
Facility # <u>Edmonds Terminal NWENVPM600143080</u>		WBS		Sediment	Ground	Surface	Potable	NPDES	Air	Oil	Total Number of Containers	<input type="checkbox"/> Naphth <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAHS 8270 SIM Diss. Methane BSK 175 Sulfate + Nitrate 300.0 Diss. Manganese 200.8												SCR #: _____					
Site Address <u>11720 Unoco Road, Edmonds, WA</u>												Lead Consultant <u>Arcadis</u>																	
Chevron PM <u>Kim Tolitz</u>												Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>																	
Consultant Project Mgr. <u>Samuel Miles</u>												Consultant Phone # _____																	
Sampler <u>Kelsey Franz, Kiley Zaubi, Brett Tohin, Dan Gilbert</u>																													
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE Benzene Only	8260	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method			6						
Date	Time																												
MW-139R	12/9/19	1220	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	*use Standard SGC *Dissolved Manganese field filtered					
MW-502		1343	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-503		1453	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-504		1522	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-505		1342	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-506		1455	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-507		1520	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-509		1350	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-511		1203	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-512 (MS/MSD)		1023	X			X		42	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-513		1042	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-514		1035	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
MW-515		1315	X			X		14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>[Signature]</u> Date <u>12-9-19</u> Time <u>1430</u>				Received by <u>FedEx</u> Date <u>12-9-19</u> Time _____				9																	
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____																					
8 Data Package (circle if required)				Relinquished by Commercial Carrier: _____				Received by <u>[Signature]</u> Date <u>12/10/19</u> Time <u>10:22</u>																					
Type I - Full				EDD (circle if required) <u>CVX-RTBU-FI_05 (default)</u>				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____				Temperature Upon Receipt <u>1.7-3.6 °C</u>				Custody Seals Intact? Yes No													
Type VI (Raw Data)				Other: _____																									

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11964

For Lancaster Laboratories use only
 Group # 2078384 Sample # 1219083-103

Instructions on reverse side correspond with circled numbers.

① Client Information			④ Matrix			⑤ Analyses Requested										⑥ Remarks		
Facility # <u>Edmonds Terminal NWENVPM600143080</u>			Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>			Total Number of Containers BTEX-MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH GX NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> WAVPH <input type="checkbox"/> WAEPH <input type="checkbox"/> CPAMS 8270 SIM DISS. Manganese 200.8 DISS. Mithane PSK 175 Sulfate & Nitrate 300.0										SCR #: _____		
Site Address <u>11720 Unaco Road, Edmonds, WA</u>			Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>													<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		
Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u>			Oil <input type="checkbox"/>															
Consultant/Office <u>1100 Olive Way, Suite 800, Seattle WA</u>			Total Number of Containers															
Consultant Project Mgr. <u>Samuel Miles</u>			Soil <input type="checkbox"/>															
Consultant Phone # <u>1</u>			Water <input type="checkbox"/>															
Sampler <u>Kelsey Franz, Kiley Zaubi, Brett Tobin, Dan Gilbert</u>			Grab <input type="checkbox"/> Composite <input type="checkbox"/>															
② Sample Identification		Collected																
		Date	Time															
<u>MW-516</u>		<u>12-9-19</u>	<u>1155</u>	<u>X</u>			<u>X</u>										<u>X use Standard S6c * Dissolved Manganese field filtered</u>	
<u>MW-517</u>		<u>↓</u>	<u>1152</u>	<u>X</u>			<u>X</u>											
<u>MW-518</u>		<u>↓</u>	<u>1030</u>	<u>X</u>			<u>X</u>											
<u>Dup-1</u>		<u> </u>	<u> </u>	<u>X</u>			<u>X</u>											
<u>Trip Blank</u>		<u>↓</u>	<u> </u>	<u>X</u>			<u>X</u>											
⑦ Turnaround Time Requested (TAT) (please circle) Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by <u>[Signature]</u>		Date <u>12-9-19</u>		Time <u>14:30</u>		Received by <u>Fed Ex</u>		Date <u>12-9-19</u>		Time <u></u>				
				Relinquished by _____		Date _____		Time _____		Received by _____		Date _____		Time _____				
⑧ Data Package Options (please circle if required) Type I - Full Type VI (Raw Data)				Relinquished by Commerical Carrier: UPS _____ FedEx <u>X</u> Other _____				Received by <u>Chl Wells</u>		Date <u>12/10/19</u>		Time <u>10:22</u>						
				Temperature Upon Receipt <u>1.7-3.6 °C</u>				Custody Seals Intact?		Yes		No						
⑨																		



Client: Chevron

Edmonds Terminal

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/10/2019
 Number of Packages: 5 Number of Projects: 1
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	3
Samples Chilled:	Yes	Trip Blank Type:	HCI
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by *Stephanie Sanchez*

Samples Chilled Details: Edmonds Terminal

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	192050133	2.6	IR	Wet	Y	Bagged	N
2	192050133	3.6	IR	Wet	Y	Bagged	N
3	192050133	3.2	IR	Wet	Y	Bagged	N
4	192050133	1.7	IR	Wet	Y	Bagged	N
5	192050133	3.5	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron Environmental Mgmt Co
BR1 X5139C
6101 Bollinger Canyon Road
San Ramon CA 94583

Report Date: December 26, 2019 12:14


Project: Edmonds Terminal

Account #: 11964
Group Number: 2078987
PO Number: 0015300236
Release Number: JOLITZ
State of Sample Origin: WA

Electronic Copy To ARCADIS
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Electronic Copy To Arcadis

Attn: Peter Campbell
Attn: Sam Miles
Attn: Ryan Brauchla
Attn: Ophelie Encelle
Attn: Kelsey Franz
Attn: Alexander Pink

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-126-191211 Grab Groundwater	12/11/2019 12:55	1221381
MW-126-191211 MS Grab Groundwater	12/11/2019 12:55	1221382
MW-126-191211 MSD Grab Groundwater	12/11/2019 12:55	1221383
MW-126-191211 DUP Grab Groundwater	12/11/2019 12:55	1221384
MW-129R-191211 Grab Groundwater	12/11/2019 11:20	1221385
MW-143-191211 Grab Groundwater	12/11/2019 12:12	1221386
MW-519-191211 Grab Groundwater	12/11/2019 12:40	1221387
MW-521-191211 Grab Groundwater	12/11/2019 12:43	1221388
MW-525-191211 Grab Groundwater	12/11/2019 09:30	1221389
MW-526-191211 Grab Groundwater	12/11/2019 09:03	1221390
MW-531-191211 Grab Groundwater	12/11/2019 09:25	1221391
MW-532-191211 Grab Groundwater	12/11/2019 09:22	1221392
MW-533-191211 Grab Groundwater	12/11/2019 10:42	1221393
MW-ER-191211 Grab Groundwater	12/11/2019 11:05	1221394
LM-2-191211 Grab Groundwater	12/11/2019 10:53	1221395
DUP-2-191211 Grab Groundwater	12/11/2019	1221396
QA-T-191211 NA Water	12/11/2019	1221397

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-126-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221381
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	35.7	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:32	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:31	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 01:26	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221381
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 20:17	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 20:16	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:12	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 22:49	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:39	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:20	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:20	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221382
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	23	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	0.9	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	0.9	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	0.9	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	1	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,200	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	54	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	200	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	87.3	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	2,600	250	500	5
00228	Sulfate	14808-79-8	51,600	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:54	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:53	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 01:53	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MS Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221382
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 20:41	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 20:40	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:29	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:12	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:45	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:58	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:58	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221383
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	23	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	1	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	1	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	1	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	0.9	0.01	0.05	1
14244	Chrysene	218-01-9	1	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	0.9	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.9	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	1,100	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	59	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	230	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 08:16	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:15	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19350WAA026	12/21/2019 02:20	Ashley R Transue	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19350WAA026	12/16/2019 19:45	Laura Duquette	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:05	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:04	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 12:46	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:35	Timothy M Emrick	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 MSD Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221383
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPh-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-126-191211 DUP Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221384
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:55

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved						
		EPA 200.8 rev 5.4	ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	34.6	0.63	2.0	1
Wet Chemistry						
		EPA 300.0	ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	31,600	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:43	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 19:39	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 19:39	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221385
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 11:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	37 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,500	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	62 J	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	8,610	12.7	40.0	20
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	41,400	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 08:38	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:37	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-129R-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221385
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 11:20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 08:38	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:29	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:28	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 17:11	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/19/2019 23:58	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 12:57	Bradley M Berlot	20
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:17	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 20:17	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221386
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	ug/l 0.2	ug/l 1	1
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	ug/l 0.01	ug/l 0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles ECY 97-602 NWTPH-Gx						
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	ug/l 19	ug/l 250	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	1,900 E	ug/l 3.0	ug/l 5.0	1
The reported result for Methane exceeded the calibration range of the instrument.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWTPH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	ug/l 45	ug/l 100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	1,370	ug/l 3.2	ug/l 10.0	5
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	ug/l 250	ug/l 500	5
00228	Sulfate	14808-79-8	19,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 08:59	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 09:08	Catherine E Bachman	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-143-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221386
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 21:52	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 21:51	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 13:36	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 00:21	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 12:59	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:35	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 20:35	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221387
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:40

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	830	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	120	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	145	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	91,800	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:22	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 09:21	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-519-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221387
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:40

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 09:39	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 22:16	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 22:15	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 17:45	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 00:44	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:03	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 20:54	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 17:53	Samantha Faverio	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221388
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 12:43

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	14	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	48	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	270	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	216	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	77,400	3,000	10,000	10

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 09:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 09:43	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 10:09	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-521-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221388
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 12:43

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 22:39	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 22:38	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 14:10	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:07	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:04	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:13	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:10	Samantha Faverio	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221389
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:30

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	3	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.06	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.06	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.06	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.06	1
14244	Chrysene	218-01-9	N.D.	0.01	0.06	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.06	1
GC Volatiles						
ECY 97-602 NWT PH-Gx			ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	88 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	1,300	15	25	5
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWT PH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	50	110	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	110	280	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	4,840	6.3	20.0	10
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	332,000	15,000	50,000	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:06	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:05	Anita M Dale	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-525-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221389
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 09:30

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 10:39	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 23:26	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 23:25	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/16/2019 18:01	Johanna C Kennedy	5
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:30	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 13:00	Bradley M Berlot	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:32	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:27	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221390
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.08	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	150 J	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	4.1 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	373	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	410 J	250	500	5
00228	Sulfate	14808-79-8	19,700	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:28	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:27	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 11:10	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-526-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221390
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 23:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 23:49	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 14:44	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 01:52	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/18/2019 13:08	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 21:50	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 21:50	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221391
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 09:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	120	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	2,460	3.2	10.0	5
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	390 J	250	500	5
00228	Sulfate	14808-79-8	156,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 10:50	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 10:49	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 11:40	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-531-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221391
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:25

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 00:14	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 00:13	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:01	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470024A	12/20/2019 02:15	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470024A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705007A	12/19/2019 13:02	Bradley M Berlot	5
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705007	12/16/2019 03:29	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 22:47	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 18:44	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221392
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	25	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	45	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	250	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	39.7	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	N.D.	250	500	5
00228	Sulfate	14808-79-8	26,000	1,500	5,000	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:12	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:11	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 12:11	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-532-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221392
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 09:22

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 00:37	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 00:36	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:18	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 04:33	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:49	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 23:05	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/12/2019 23:05	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221393
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 10:42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	N.D.	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	650	250	500	5
00228	Sulfate	14808-79-8	188,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:33	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:32	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 12:41	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-533-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221393
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 10:42

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:01	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:00	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 15:34	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 04:56	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:50	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109A	12/12/2019 23:24	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109A	12/15/2019 19:02	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221394
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 11:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	2 ug/l	10 ug/l	10
Reporting limits were raised due to sample foaming.						
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWT PH-Gx						
08273	NWT PH-Gx water C7-C12	n.a.	770	19 ug/l	250 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	17,000	150 ug/l	250 ug/l	50
The ending CCV was analyzed outside the method defined interval for bracketing CCVs. There is insufficient sample volume remaining to repeat the sample analysis. The response for the ending CCV is within the %D limits.						
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWT PH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	74 J	45 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	250 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	7,120	6.3 ug/l	20.0 ug/l	10
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	N.D.	1,500 ug/l	5,000 ug/l	5

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 11:56	Anita M Dale	10

*=This limit was used in the evaluation of the final result

Sample Description: MW-ER-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221394
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 11:05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 11:55	Anita M Dale	10
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 13:11	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:25	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:24	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/17/2019 07:09	Johanna C Kennedy	50
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 05:19	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/19/2019 13:27	Bradley M Berlot	10
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/12/2019 23:43	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/12/2019 23:43	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221395
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C						
13130	Benzene	71-43-2	N.D.	2 ug/l	10 ug/l	10
Reporting limits were raised due to sample foaming.						
GC/MS Semivolatiles SW-846 8270D SIM						
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Chrysene	218-01-9	N.D.	0.01 ug/l	0.05 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	0.07 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	0.05 ug/l	1
GC Volatiles ECY 97-602 NWT PH-Gx						
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	19 ug/l	250 ug/l	1
GC Miscellaneous RSKSOP-175 modified						
07105	Methane	74-82-8	400	3.0 ug/l	5.0 ug/l	1
GC Petroleum Hydrocarbons w/Si ECY 97-602 NWT PH-Dx modified						
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	47 ug/l	100 ug/l	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100 ug/l	260 ug/l	1
Metals Dissolved EPA 200.8 rev 5.4						
06037	Manganese	7439-96-5	260	0.63 ug/l	2.0 ug/l	1
Wet Chemistry EPA 300.0						
00368	Nitrate Nitrogen	14797-55-8	N.D.	250 ug/l	500 ug/l	5
00228	Sulfate	14808-79-8	254,000	15,000 ug/l	50,000 ug/l	50

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 12:18	Anita M Dale	10
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 12:17	Anita M Dale	10
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 13:42	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: LM-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221395
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26

Collection Date/Time: 12/11/2019 10:53

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19349A20A	12/17/2019 22:30	Erin E Durkaj	1
01146	GC VOA Water Prep	SW-846 5030C	1	19349A20A	12/17/2019 22:29	Erin E Durkaj	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 16:25	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 05:42	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 13:58	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/13/2019 00:39	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/15/2019 19:19	Samantha Faverio	50

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221396
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submittal Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
SW-846 8260C			ug/l	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1	1
GC/MS Semivolatiles						
SW-846 8270D SIM			ug/l	ug/l	ug/l	
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	0.05	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	0.05	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	0.05	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	0.05	1
14244	Chrysene	218-01-9	N.D.	0.01	0.05	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	0.07	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	0.05	1
GC Volatiles						
ECY 97-602 NWTPH-Gx			ug/l	ug/l	ug/l	
08273	NWTPH-Gx water C7-C12	n.a.	N.D.	19	250	1
GC Miscellaneous						
RSKSOP-175 modified			ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3.7 J	3.0	5.0	1
GC Petroleum Hydrocarbons w/Si						
ECY 97-602 NWTPH-Dx modified			ug/l	ug/l	ug/l	
12917	DX DRO C12-C24 w/ SiGel	n.a.	N.D.	46	100	1
12917	DX HRO C24-C40 w/ SiGel	n.a.	N.D.	100	260	1
Metals Dissolved						
EPA 200.8 rev 5.4			ug/l	ug/l	ug/l	
06037	Manganese	7439-96-5	0.88 J	0.63	2.0	1
Wet Chemistry						
EPA 300.0			ug/l	ug/l	ug/l	
00368	Nitrate Nitrogen	14797-55-8	620	250	500	5
00228	Sulfate	14808-79-8	185,000	6,000	20,000	20

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.
Carcinogenic PAHs have been reported for this sample.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 12:39	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 12:38	Anita M Dale	1
14244	SIM SVOAs 8270D MINI	SW-846 8270D SIM	1	19347WAJ026	12/18/2019 14:12	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	19347WAJ026	12/15/2019 23:00	Mathias Okpo	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2-191211 Grab Groundwater
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221396
ELLE Group #: 2078987
Matrix: Groundwater

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/14/2019 01:48	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/14/2019 01:47	Jeremy C Giffin	1
07105	Volatile Headspace Hydrocarbon	RSKSOP-175 modified	1	193470002A	12/13/2019 16:42	Johanna C Kennedy	1
12917	NWTPH-Dx water w/Si Gel	ECY 97-602 NWTPH-Dx modified	1	193470025A	12/20/2019 06:05	Timothy M Emrick	1
12924	Mini-Ext. DRO DX, Column SiGel	ECY 97-602 NWTPH-Dx 06/97	1	193470025A	12/16/2019 08:00	David S Schrum	1
06037	Manganese	EPA 200.8 rev 5.4	1	193460705008A	12/18/2019 14:00	Bradley M Berlot	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	193460705008	12/16/2019 03:35	James L Mertz	1
00368	Nitrate Nitrogen	EPA 300.0	1	19346987109B	12/12/2019 19:02	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	19346987109B	12/15/2019 19:36	Samantha Faverio	20

*=This limit was used in the evaluation of the final result

Sample Description: QA-T-191211 NA Water
Unocal Edmonds Terminal
11720 Unoco Road - Edmonds, WA

Chevron Environmental Mgmt Co
ELLE Sample #: GW 1221397
ELLE Group #: 2078987
Matrix: Water

Project Name: Edmonds Terminal

Submission Date/Time: 12/12/2019 10:26
Collection Date/Time: 12/11/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
13130	Benzene	SW-846 8260C 71-43-2	ug/l N.D.	ug/l 0.2	ug/l 1	1
GC Volatiles						
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx n.a.	ug/l N.D.	ug/l 19	ug/l 250	1

Sample Comments

State of Washington Lab Certification No. C457

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	Benzene	SW-846 8260C	1	F193482AA	12/14/2019 07:10	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F193482AA	12/14/2019 07:09	Anita M Dale	1
08273	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	19346A20A	12/13/2019 19:54	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030C	1	19346A20A	12/13/2019 19:53	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: F193482AA	Sample number(s): 1221381-1221383,1221385-1221397		
Benzene	N.D.	0.2	1
Batch number: 19347WAJ026	Sample number(s): 1221385-1221396		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19350WAA026	Sample number(s): 1221381-1221383		
Benzo(a)anthracene	N.D.	0.01	0.05
Benzo(a)pyrene	N.D.	0.01	0.05
Benzo(b)fluoranthene	N.D.	0.01	0.05
Benzo(k)fluoranthene	N.D.	0.01	0.05
Chrysene	N.D.	0.01	0.05
Dibenz(a,h)anthracene	N.D.	0.02	0.07
Indeno(1,2,3-cd)pyrene	N.D.	0.01	0.05
Batch number: 19346A20A	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 19349A20A	Sample number(s): 1221395		
NWTPH-Gx water C7-C12	N.D.	19	250
Batch number: 193470002A	Sample number(s): 1221381-1221383,1221385-1221396		
Methane	N.D.	3.0	5.0
Batch number: 193470024A	Sample number(s): 1221381-1221383,1221385-1221391		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193470025A	Sample number(s): 1221392-1221396		
DX DRO C12-C24 w/ SiGel	N.D.	45	100
DX HRO C24-C40 w/ SiGel	N.D.	100	250
Batch number: 193460705007A	Sample number(s): 1221385-1221391		
Manganese	N.D.	0.63	2.0
Batch number: 193460705008A	Sample number(s): 1221381-1221382,1221384,1221392-1221396		
Manganese	0.78 J	0.63	2.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 19346987109A	Sample number(s): 1221381-1221382,1221384-1221393		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000
Batch number: 19346987109B	Sample number(s): 1221394-1221396		
Nitrate Nitrogen	N.D.	50	100
Sulfate	N.D.	300	1,000

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: F193482AA	Sample number(s): 1221381-1221383,1221385-1221397								
Benzene	20	21.45			107		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19347WAJ026	Sample number(s): 1221385-1221396								
Benzo(a)anthracene	1.00	0.898			90		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.989			99		72-143		
Benzo(k)fluoranthene	1.00	0.927			93		70-134		
Chrysene	1.00	0.887			89		70-114		
Dibenz(a,h)anthracene	1.00	0.872			87		72-138		
Indeno(1,2,3-cd)pyrene	1.00	0.910			91		73-147		
Batch number: 19350WAA026	Sample number(s): 1221381-1221383								
Benzo(a)anthracene	1.00	0.861			86		69-126		
Benzo(a)pyrene	1.00	0.962			96		78-130		
Benzo(b)fluoranthene	1.00	0.999			100		72-143		
Benzo(k)fluoranthene	1.00	0.870			87		70-134		
Chrysene	1.00	0.857			86		70-114		
Dibenz(a,h)anthracene	1.00	0.960			96		72-138		
Indeno(1,2,3-cd)pyrene	1.00	1.06			106		73-147		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346A20A	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397								
NWTPH-Gx water C7-C12	1100	1051.64			96		64-131		
Batch number: 19349A20A	Sample number(s): 1221395								
NWTPH-Gx water C7-C12	1100	1050.32	1100	1072.35	95	97	64-131	2	30
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 193470002A Methane	Sample number(s): 1221381-1221383,1221385-1221396				104		85-115		
	59.83	62.06							
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470024A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221381-1221383,1221385-1221391				45		10-115		
	600.05	272.57							
Batch number: 193470025A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221392-1221396				45	50	10-115	11	20
	600.05	268.52	600.05	299.51					
	ug/l	ug/l	ug/l	ug/l					
Batch number: 193460705007A Manganese	Sample number(s): 1221385-1221391				107		85-115		
	50	53.37							
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396				106		85-115		
	50	52.86							
	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346987109A Nitrate Nitrogen Sulfate	Sample number(s): 1221381-1221382,1221384-1221393				99		90-110		
	750	739.12			100		90-110		
	7500	7510.13							
Batch number: 19346987109B Nitrate Nitrogen Sulfate	Sample number(s): 1221394-1221396				99		90-110		
	750	739.12			100		90-110		
	7500	7510.13							

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
Batch number: F193482AA Benzene	Sample number(s): 1221381-1221383,1221385-1221397 UNSPK: 1221381										
	N.D.	20	22.95	20	22.54	115	113	80-120	2	30	
	ug/l	ug/l	ug/l	ug/l	ug/l						
Batch number: 19350WAA026 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene	Sample number(s): 1221381-1221383 UNSPK: 1221381										
	N.D.	1.01	0.926	1.05	0.996	92	95	69-126	7	30	
	N.D.	1.01	0.949	1.05	0.966	94	92	78-130	2	30	
	N.D.	1.01	0.980	1.05	1.01	97	96	72-143	3	30	
	N.D.	1.01	0.895	1.05	0.941	88	90	70-134	5	30	

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
Chrysene	N.D.	1.01	0.903	1.05	0.958	89	91	70-114	6	30	
Dibenz(a,h)anthracene	N.D.	1.01	0.893	1.05	0.867	88	83	72-138	3	30	
Indeno(1,2,3-cd)pyrene	N.D.	1.01	0.997	1.05	0.935	98	89	73-147	6	30	
	ug/l	ug/l	ug/l	ug/l	ug/l						
Batch number: 19346A20A NWTPH-Gx water C7-C12	Sample number(s): 1221381-1221383,1221385-1221394,1221396-1221397 UNSPK: 1221381	N.D.	1100	1177.54	1100	1138.21	107	103	80-120	3	30
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470002A Methane	Sample number(s): 1221381-1221383,1221385-1221396 UNSPK: 1221381	N.D.	59.83	53.79	59.83	59.3	90	99	73-125	10	30
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193470024A DX DRO C12-C24 w/ SiGel	Sample number(s): 1221381-1221383,1221385-1221391 UNSPK: 1221381	N.D.	622.46	202.63	622.46	230.86	33	37	30-115	13	20
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396 UNSPK: 1221381	35.72	50	87.25			103		70-130		
		ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 19346987109A Nitrate Nitrogen	Sample number(s): 1221381-1221382,1221384-1221393 UNSPK: 1221381	N.D.	2500	2579.64			103		90-110		
Sulfate		31043.98	25000	51600.93			82*		90-110		
Batch number: 19346987109B Nitrate Nitrogen	Sample number(s): 1221394-1221396 UNSPK: 1221394	N.D.	2500	2543.22			102		90-110		
Sulfate		N.D.	25000	26651.59			107		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max	
Batch number: 193460705008A Manganese	Sample number(s): 1221381-1221382,1221384,1221392-1221396 BKG: 1221381	35.72	34.65	3	20
	ug/l	ug/l			

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 19346987109A	Sample number(s): 1221381-1221382, 1221384-1221393 BKG: 1221381			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	31043.98	31570.56	2	15
Batch number: 19346987109B	Sample number(s): 1221394-1221396 BKG: 1221394			
Nitrate Nitrogen	N.D.	N.D.	0 (1)	15
Sulfate	N.D.	N.D.	0 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Benzene
Batch number: F193482AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1221381	93	95	103	99
1221382	94	102	102	98
1221383	93	101	102	100
1221385	94	95	102	98
1221386	92	98	103	97
1221387	93	97	102	97
1221388	93	97	102	98
1221389	94	96	102	97
1221390	94	96	102	98
1221391	94	95	102	97
1221392	94	97	102	97
1221393	94	97	103	98
1221394	94	99	100	96
1221395	94	97	103	98
1221396	93	95	101	95
1221397	94	99	101	97
Blank	94	94	103	98
LCS	92	97	102	99
MS	94	102	102	98
MSD	93	101	102	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: SIM SVOAs 8270D MINI
Batch number: 19347WAJ026

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19347WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1221385	77	66	64
1221386	74	56	59
1221387	63	59	61
1221388	61	45	60
1221389	78	39	65
1221390	77	53	69
1221391	64	11*	63
1221392	74	65	62
1221393	66	49	59
1221394	69	58	60
1221395	52	52	58
1221396	69	44	57
Blank	78	71	64
LCS	74	69	56
Limits:	48-128	18-129	30-114

Analysis Name: SIM SVOAs 8270D MINI

Batch number: 19350WAA026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1221381	68	57	51
1221382	67	64	59
1221383	73	64	58
Blank	61	58	52
LCS	63	65	52
MS	67	64	59
MSD	73	64	58
Limits:	48-128	18-129	30-114

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19346A20A

	Trifluorotoluene-F
1221381	80
1221382	91
1221383	92
1221385	82
1221386	79
1221387	83
1221388	79
1221389	84
1221390	68

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19346A20A

	Trifluorotoluene-F
1221391	69
1221392	72
1221393	83
1221394	68
1221396	62
1221397	75
Blank	66
LCS	76
MS	91
MSD	92

Limits: 50-150

Analysis Name: NWTPH-Gx water C7-C12

Batch number: 19349A20A

	Trifluorotoluene-F
1221395	79
Blank	71
LCS	78
LCSD	81

Limits: 50-150

Analysis Name: Volatile Headspace Hydrocarbon

Batch number: 193470002A

	Propene
1221381	72
1221382	89
1221383	96
1221385	85
1221386	81
1221387	96
1221388	71
1221389	91
1221390	79
1221391	84
1221392	67
1221393	71
1221394	97
1221395	67
1221396	80
Blank	107

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Environmental Mgmt Co
Reported: 12/26/2019 12:14

Group Number: 2078987

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 193470002A

	Propene
LCS	91
MS	89
MSD	96

Limits: 46-135

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470024A

	Orthoterphenyl	Capric Acid
1221381	67	0
1221382	59	0
1221383	66	0
1221385	80	0
1221386	76	0
1221387	75	0
1221388	75	0
1221389	58	0
1221390	65	0
1221391	69	0
Blank	74	0
LCS	69	0
MS	59	0
MSD	66	0

Limits: 50-150 0-1

Analysis Name: NWTPH-Dx water w/Si Gel
Batch number: 193470025A

	Orthoterphenyl	Capric Acid
1221392	71	0
1221393	71	0
1221394	81	0
1221395	50	0
1221396	60	0
Blank	72	0
LCS	69	0
LCSD	77	0

Limits: 50-150 0-1

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11964 Group # 2078987 Sample # 1221381-97
 For Lancaster Laboratories use only
 Instructions on reverse side correspond with circled numbers.

① Client Information				④ Matrix			⑤ Analyses Requested										SCR #: _____			
Facility # WBS <u>Edmonds Terminal NWENVPmG00143080</u>				<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input checked="" type="checkbox"/> Ground <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Air	Total Number of Containers BTEX-MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth BENZENE ONLY 8260 full scan Oxygenates NWTPH GX NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method WAVPH <input type="checkbox"/> WAEPH	EPAHS 3270 SIM Diss. Methane RSK175 Sulfate + Nitrate 300.0 Diss. Manganese 200.0										<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits				
Site Address <u>11720 Unoco Road, Edmonds, WA</u>																				
Chevron PM Lead Consultant <u>Kim Jolitz Arcadis</u>																				
Consultant/Office <u>1100 Olive Way, Suite 300, Seattle WA</u>																				
Consultant Project Mgr. <u>Samuel Miles</u>																				
Consultant Phone #																				
Sampler <u>Kelsey Franz, Kiley Zauri, Brett Tobin, Van Gilber</u>				Composite <input type="checkbox"/> Grab <input type="checkbox"/>											⑥ Remarks * Use Standard SGC * Dissolved Manganese field filtered					
② Sample Identification		Collected																		
Sample ID	Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX-MTBE 8021	8260	Oxygenates	NWTPH GX	NWTPH DX	Lead	Total	Diss.	Method	WAVPH	WAEPH	
MW-120 (ms/msD)	12/11/19	1255	X			X	4	14	X			X	X						X	X
MW-129R		1120	X			X		14	X			X	X						X	X
MW-143		1212	X			X		14	X			X	X						X	X
MW-519		1240	X			X		14	X			X	X						X	X
MW-521		1243	X			X		14	X			X	X						X	X
MW-525		0930	X			X		13	X			X	X						X	X
MW-526		0903	X			X		14	X			X	X						X	X
MW-531		0925	X			X		14	X			X	X						X	X
MW-532		0922	X			X		14	X			X	X						X	X
MW-533		1042	X			X		14	X			X	X						X	X
MW-ER		1105	X			X		14	X			X	X						X	X
LM-2		1053	X			X		14	X			X	X						X	X
DUP-2			X			X		14	X			X	X						X	X
⑦ Turnaround Time Requested (TAT) (please circle)				Relinquished by		Date		Time		Received by		Date		Time		⑨				
Standard 5 day 4 day 72 hour 48 hour 24 hour				Brett Tobin		12-11-19		1530		FedEx		12-11-19		1530						
⑧ Data Package Options (please circle if required)				Relinquished by Commerical Carrier:						Received by		Date		Time						
Type I - Full Type VI (Raw Data)				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____						[Signature]		12/12/19		1026						
				Temperature Upon Receipt 0.1/2psi °C						Custody Seals Intact?		Yes <input checked="" type="checkbox"/> No								

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 119104 Group # 2077207898 Sample # 1221381-97
 For Lancaster Laboratories use only
 Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix				5 Analyses Requested										6 Remarks					
Facility # <u>Edmonds Terminal NWENUPMG00143080</u> Site Address <u>11720 Unoco Road, Edmonds, WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u> Consultant Project Mgr. <u>Samuel Miles</u> Consultant Phone # _____			Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/>				Total Number of Containers <u>2</u> <input type="checkbox"/> BTEX-MTBE-8021 <input checked="" type="checkbox"/> 8260 Naphth 8260 full scan Oxygenates _____ NWTPH GX NWTPH DX <input type="checkbox"/> Silica Gel Cleanup <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ WAVPH <input type="checkbox"/> WAEPH <input type="checkbox"/>										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits					
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers											6		
Date	Time	Date	Time																			
<u>TRIP BLANK</u>		<u>-</u>	<u>-</u>				<u>X</u>		<u>2</u>	<u>X</u>	<u>X</u>											
7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour			Relinquished by <u>Brett Tobin</u>		Date <u>12-11-19</u>	Time <u>1530</u>	Received by <u>FEDEX</u>		Date <u>12-11-19</u>	Time <u>1530</u>											9	
			Relinquished by _____		Date _____	Time _____	Received by _____		Date _____	Time _____												
8 Data Package Options (please circle if required) Type I - Full Type VI (Raw Data)			Relinquished by Commerical Carrier:				Received by _____		Date <u>12/21/19</u>	Time <u>1026</u>											9	
			UPS _____ FedEx <input checked="" type="checkbox"/> Other _____		Temperature Upon Receipt <u>0.1 / 2.0 °C</u>		Custody Seals Intact? <u>Yes</u>		Date _____	Time _____												



Client: EDMONDS TERMINAL

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 12/12/2019
 Number of Packages: 4 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCL
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jessenia Colon Martinez

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	192050133	1.7	IR	Wet	Y	Bagged	N
2	192050133	0.1	IR	Wet	Y	Bagged	N
3	192050133	1.6	IR	Wet	Y	Bagged	N
4	192050133	2.6	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

APPENDIX E

Discharge Monitoring Reports





Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 01/01/2019 - 01/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	DPE	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-T	1/1/19											
1-W	1/2/19	54.60	7.55	B 1	B 250	200	B 0.009	B 0.015	B 0.012	B 0.013	B 0.017	B 0.012
1-Th	1/3/19											
1-F	1/4/19											
1-Sa	1/5/19											
2-Su	1/6/19											
2-M	1/7/19											
2-T	1/8/19											
2-W	1/9/19											
2-Th	1/10/19											
2-F	1/11/19	74.80	7.21	B 1	B 250	J 72	B 0.009	B 0.014	B 0.011	B 0.012	B 0.016	B 0.011
2-Sa	1/12/19											
3-Su	1/13/19											
3-M	1/14/19											
3-T	1/15/19											
3-W	1/16/19											
3-Th	1/17/19	52.20	7.47	B 1	B 250	B 120	B 0.026	B 0.042	B 0.033	B 0.036	B 0.049	B 0.033
3-F	1/18/19											
3-Sa	1/19/19											
4-Su	1/20/19											
4-M	1/21/19											
4-T	1/22/19											
4-W	1/23/19											
4-Th	1/24/19	65.00	7.63	B 1	B 250	B 110	B 0.009	B 0.014	B 0.011	B 0.012	B 0.016	B 0.011
4-F	1/25/19											
4-Sa	1/26/19											
5-Su	1/27/19											
5-M	1/28/19											
5-T	1/29/19	57.60	7.89	B 1	B 250	B 110	B 0.009	B 0.014	B 0.011	B 0.012	B 0.016	B 0.011
5-W	1/30/19											
5-Th	1/31/19											
Daily Minimum			7.21									
			>= 6.0 (RO)									
Daily Maximum		74.8	7.89	1	250	200	0.026	0.042	0.033	0.036	0.049	0.033
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	DPE	
		DPE	DPE
1-T	1/1/19		
1-W	1/2/19	B 0.011	B 0.015
1-Th	1/3/19		
1-F	1/4/19		
1-Sa	1/5/19		
2-Su	1/6/19		
2-M	1/7/19		
2-T	1/8/19		
2-W	1/9/19		
2-Th	1/10/19		
2-F	1/11/19	B 0.010	B 0.014
2-Sa	1/12/19		
3-Su	1/13/19		
3-M	1/14/19		
3-T	1/15/19		
3-W	1/16/19		
3-Th	1/17/19	B 0.030	B 0.042
3-F	1/18/19		
3-Sa	1/19/19		
4-Su	1/20/19		
4-M	1/21/19		
4-T	1/22/19		
4-W	1/23/19		
4-Th	1/24/19	B 0.010	B 0.014
4-F	1/25/19		
4-Sa	1/26/19		
5-Su	1/27/19		
5-M	1/28/19		
5-T	1/29/19	B 0.010	B 0.014
5-W	1/30/19		
5-Th	1/31/19		
Daily Minimum			
Daily Maximum		0.03	0.042
		Report Only	Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

2/13/2019 12:39:49 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 02/01/2019 - 02/28/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	DPE	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-F	2/1/19											
1-Sa	2/2/19											
2-Su	2/3/19											
2-M	2/4/19											
2-T	2/5/19											
2-W	2/6/19	C	C	C	C	C	C	C	C	C	C	C
2-Th	2/7/19											
2-F	2/8/19											
2-Sa	2/9/19											
3-Su	2/10/19											
3-M	2/11/19											
3-T	2/12/19											
3-W	2/13/19											
3-Th	2/14/19	58.20	7.91	B 1	250	B 120	B 0.009	B 0.014	B 0.011	B 0.012	B 0.016	B 0.011
3-F	2/15/19											
3-Sa	2/16/19											
4-Su	2/17/19											
4-M	2/18/19											
4-T	2/19/19											
4-W	2/20/19											
4-Th	2/21/19	58.30	7.76	B 1	B 250	B 110	B 0.009	B 0.014	B 0.011	B 0.012	B 0.016	B 0.011
4-F	2/22/19											
4-Sa	2/23/19											
5-Su	2/24/19											
5-M	2/25/19											
5-T	2/26/19	51.20	7.27	B 1	B 250	B 110	B 0.009	B 0.014	B 0.011	B 0.012	B 0.017	B 0.011
5-W	2/27/19											
5-Th	2/28/19											
Daily Minimum			7.27									
			>= 6.0 (RO)									
Daily Maximum		58.3	7.91	1	250	120	0.009	0.014	0.011	0.012	0.017	0.011
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui
Signature

3/14/2019 8:24:31 AM
Date



Week	Monitoring Point	DPE	
		DPE	DPE
1-F	2/1/19		
1-Sa	2/2/19		
2-Su	2/3/19		
2-M	2/4/19		
2-T	2/5/19		
2-W	2/6/19	C	C
2-Th	2/7/19		
2-F	2/8/19		
2-Sa	2/9/19		
3-Su	2/10/19		
3-M	2/11/19		
3-T	2/12/19		
3-W	2/13/19		
3-Th	2/14/19	B 0.010	B 0.014
3-F	2/15/19		
3-Sa	2/16/19		
4-Su	2/17/19		
4-M	2/18/19		
4-T	2/19/19		
4-W	2/20/19		
4-Th	2/21/19	B 0.010	B 0.014
4-F	2/22/19		
4-Sa	2/23/19		
5-Su	2/24/19		
5-M	2/25/19		
5-T	2/26/19	B 0.010	B 0.014
5-W	2/27/19		
5-Th	2/28/19		
Daily Minimum			
Daily Maximum		0.01	0.014
		Report Only	Report Only



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 03/01/2019 - 03/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	DPE	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-F	3/1/19											
1-Sa	3/2/19											
2-Su	3/3/19											
2-M	3/4/19											
2-T	3/5/19											
2-W	3/6/19	45.40	7.22	<1	<250	<120	<0.009	<0.015	<0.012	<0.013	<0.017	<0.012
2-Th	3/7/19											
2-F	3/8/19											
2-Sa	3/9/19											
3-Su	3/10/19											
3-M	3/11/19											
3-T	3/12/19											
3-W	3/13/19											
3-Th	3/14/19	43.30	7.38	<1	<250	<110	<0.009	<0.015	<0.011	<0.012	<0.017	<0.011
3-F	3/15/19											
3-Sa	3/16/19											
4-Su	3/17/19											
4-M	3/18/19											
4-T	3/19/19											
4-W	3/20/19											
4-Th	3/21/19											
4-F	3/22/19	55.20	7.89	<1	<250	<130	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
4-Sa	3/23/19											
5-Su	3/24/19											
5-M	3/25/19											
5-T	3/26/19											
5-W	3/27/19											
5-Th	3/28/19											
5-F	3/29/19	48.20	7.65	<1	<250	<110	<0.009	<0.015	<0.012	<0.012	<0.016	<0.011
5-Sa	3/30/19											
6-Su	3/31/19											
Daily Minimum			7.22									
			>= 6.0 (RO)									
Daily Maximum		55.2	7.89	<1	<250	<130	<0.009	<0.015	<0.012	<0.013	<0.017	<0.012
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	DPE	
		DPE	DPE
1-F	3/1/19		
1-Sa	3/2/19		
2-Su	3/3/19		
2-M	3/4/19		
2-T	3/5/19		
2-W	3/6/19	<0.011	<0.015
2-Th	3/7/19		
2-F	3/8/19		
2-Sa	3/9/19		
3-Su	3/10/19		
3-M	3/11/19		
3-T	3/12/19		
3-W	3/13/19		
3-Th	3/14/19	<0.010	<0.015
3-F	3/15/19		
3-Sa	3/16/19		
4-Su	3/17/19		
4-M	3/18/19		
4-T	3/19/19		
4-W	3/20/19		
4-Th	3/21/19		
4-F	3/22/19	<0.010	<0.014
4-Sa	3/23/19		
5-Su	3/24/19		
5-M	3/25/19		
5-T	3/26/19		
5-W	3/27/19		
5-Th	3/28/19		
5-F	3/29/19	<0.010	<0.014
5-Sa	3/30/19		
6-Su	3/31/19		
Daily Minimum			
Daily Maximum		<0.011	<0.015
		Report Only	Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

4/22/2019 12:54:32 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 04/01/2019 - 04/30/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzob (fluoranthene) (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzok (fluoranthene) (1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,2,3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
1-M	4/1/19											
1-T	4/2/19	45.50	7.31	<1	<250	<110	<0.009	<0.015	<0.012	<0.013	<0.017	<0.012
1-W	4/3/19											
1-Th	4/4/19											
1-F	4/5/19											
1-Sa	4/6/19											
2-Su	4/7/19											
2-M	4/8/19											
2-T	4/9/19											
2-W	4/10/19											
2-Th	4/11/19	49.60	7.29	<1	<250	<120	<0.009	<0.015	<0.012	<0.013	<0.017	<0.012
2-F	4/12/19											
2-Sa	4/13/19											
3-Su	4/14/19											
3-M	4/15/19											
3-T	4/16/19											
3-W	4/17/19	43.40	7.47	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.017	<0.011
3-Th	4/18/19											
3-F	4/19/19											
3-Sa	4/20/19											
4-Su	4/21/19											
4-M	4/22/19											
4-T	4/23/19											
4-W	4/24/19											
4-Th	4/25/19	48.30	7.51	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
4-F	4/26/19											
4-Sa	4/27/19											
5-Su	4/28/19											
5-M	4/29/19											
5-T	4/30/19											
Daily Minimum			7.29 ≥ 6.0 (RO)									
Daily Maximum		49.6 ≤ 100 (RO)	7.51 ≤ 9.0 (RO)	<1 ≤ 16 (RO)	<250 ≤ 800 (RO)	<120 ≤ 500 (RO)	<0.009 ≤ 0.05 (RO)	<0.015 Report Only	<0.012 Report Only	<0.013 Report Only	<0.017 Report Only	<0.012 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-M	4/1/19		
1-T	4/2/19	<0.011	<0.015
1-W	4/3/19		
1-Th	4/4/19		
1-F	4/5/19		
1-Sa	4/6/19		
2-Su	4/7/19		
2-M	4/8/19		
2-T	4/9/19		
2-W	4/10/19		
2-Th	4/11/19	<0.010	<0.015
2-F	4/12/19		
2-Sa	4/13/19		
3-Su	4/14/19		
3-M	4/15/19		
3-T	4/16/19		
3-W	4/17/19	<0.010	<0.014
3-Th	4/18/19		
3-F	4/19/19		
3-Sa	4/20/19		
4-Su	4/21/19		
4-M	4/22/19		
4-T	4/23/19		
4-W	4/24/19		
4-Th	4/25/19	<0.01	<0.014
4-F	4/26/19		
4-Sa	4/27/19		
5-Su	4/28/19		
5-M	4/29/19		
5-T	4/30/19		
Daily Minimum			
Daily Maximum		<0.011 Report Only	<0.015 Report Only



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Garrick Jauregui

Signature

5/28/2019 10:50:55 AM

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 05/01/2019 - 05/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokluoranthene (1,1,12-benzokluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,2,3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-W	5/1/19											
1-Th	5/2/19	41.00	7.75	<1	<250	<120	<0.009	<0.015	<0.012	<0.013	<0.017	<0.012
1-F	5/3/19											
1-Sa	5/4/19											
2-Su	5/5/19											
2-M	5/6/19											
2-T	5/7/19											
2-W	5/8/19											
2-Th	5/9/19	40.80	7.46	<1	<250	<120	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-F	5/10/19											
2-Sa	5/11/19											
3-Su	5/12/19											
3-M	5/13/19											
3-T	5/14/19											
3-W	5/15/19											
3-Th	5/16/19											
3-F	5/17/19	31.30	7.39	<1	<250	<110	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
3-Sa	5/18/19											
4-Su	5/19/19											
4-M	5/20/19											
4-T	5/21/19											
4-W	5/22/19											
4-Th	5/23/19	34.40	7.19	<1	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
4-F	5/24/19											
4-Sa	5/25/19											
5-Su	5/26/19											
5-M	5/27/19											
5-T	5/28/19											
5-W	5/29/19											
5-Th	5/30/19	37.80	7.69	<1	<250	<120	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
5-F	5/31/19											
Daily Minimum			7.19									
			>= 6.0 (RO)									
Daily Maximum		41	7.75	<1	<250	<120	<0.01	<0.015	<0.012	<0.013	<0.017	<0.012
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-W	5/1/19		
1-Th	5/2/19	<0.011	<0.015
1-F	5/3/19		
1-Sa	5/4/19		
2-Su	5/5/19		
2-M	5/6/19		
2-T	5/7/19		
2-W	5/8/19		
2-Th	5/9/19	<0.010	<0.014
2-F	5/10/19		
2-Sa	5/11/19		
3-Su	5/12/19		
3-M	5/13/19		
3-T	5/14/19		
3-W	5/15/19		
3-Th	5/16/19		
3-F	5/17/19	<0.028	<0.015
3-Sa	5/18/19		
4-Su	5/19/19		
4-M	5/20/19		
4-T	5/21/19		
4-W	5/22/19		
4-Th	5/23/19	B 0.027	B 0.015
4-F	5/24/19		
4-Sa	5/25/19		
5-Su	5/26/19		
5-M	5/27/19		
5-T	5/28/19		
5-W	5/29/19		
5-Th	5/30/19	<0.026	<0.014
5-F	5/31/19		
Daily Minimum			
Daily Maximum		<0.028	<0.015
		Report Only	Report Only



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Garrick Jauregui

6/20/2019 5:04:30 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 06/01/2019 - 06/30/2019

Outfall: 002 - Willow Creek

Version: 2

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokluoranthene (1,1,12-benzokluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Sa	6/1/19											
2-Su	6/2/19											
2-M	6/3/19											
2-T	6/4/19											
2-W	6/5/19											
2-Th	6/6/19	27.70	7.63	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-F	6/7/19											
2-Sa	6/8/19											
3-Su	6/9/19											
3-M	6/10/19											
3-T	6/11/19											
3-W	6/12/19	<5*	8.29	<1	<250	<110	<0.010	<0.016	<0.012	<0.013	<0.018	<0.012
3-Th	6/13/19											
3-F	6/14/19											
3-Sa	6/15/19											
4-Su	6/16/19											
4-M	6/17/19											
4-T	6/18/19	C	C	C	C	C	C	C	C	C	C	C
4-W	6/19/19											
4-Th	6/20/19											
4-F	6/21/19											
4-Sa	6/22/19											
5-Su	6/23/19											
5-M	6/24/19	C	C	C	C	C	C	C	C	C	C	C
5-T	6/25/19											
5-W	6/26/19											
5-Th	6/27/19											
5-F	6/28/19											
5-Sa	6/29/19											
6-Su	6/30/19	C	C	C	C	C	C	C	C	C	C	C
Daily Minimum			7.63 ≥ 6.0 (RO)									
Daily Maximum		27.7 ≤ 100 (RO)	8.29 ≤ 9.0 (RO)	<1 ≤ 16 (RO)	<250 ≤ 800 (RO)	<110 ≤ 500 (RO)	<0.01 ≤ 0.05 (RO)	<0.016 Report Only	<0.012 Report Only	<0.013 Report Only	<0.018 Report Only	<0.012 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Sa	6/1/19		
2-Su	6/2/19		
2-M	6/3/19		
2-T	6/4/19		
2-W	6/5/19		
2-Th	6/6/19	<0.026	<0.014
2-F	6/7/19		
2-Sa	6/8/19		
3-Su	6/9/19		
3-M	6/10/19		
3-T	6/11/19		
3-W	6/12/19	<0.029	<0.016
3-Th	6/13/19		
3-F	6/14/19		
3-Sa	6/15/19		
4-Su	6/16/19		
4-M	6/17/19		
4-T	6/18/19	C	C
4-W	6/19/19		
4-Th	6/20/19		
4-F	6/21/19		
4-Sa	6/22/19		
5-Su	6/23/19		
5-M	6/24/19	C	C
5-T	6/25/19		
5-W	6/26/19		
5-Th	6/27/19		
5-F	6/28/19		
5-Sa	6/29/19		
6-Su	6/30/19	C	C
Daily Minimum			
Daily Maximum		<0.029	<0.016
		Report Only	Report Only



Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Flow Gallons/minute (gpm)	6/12/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.

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Garrick Jauregui

Signature

8/19/2019 4:55:09 PM

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 07/01/2019 - 07/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokluoranthene (1,1,12-benzokluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-M	7/1/19											
1-T	7/2/19											
1-W	7/3/19	C	C	C	C	C	C	C	C	C	C	C
1-Th	7/4/19											
1-F	7/5/19											
1-Sa	7/6/19											
2-Su	7/7/19											
2-M	7/8/19											
2-T	7/9/19											
2-W	7/10/19											
2-Th	7/11/19	<5*	7.44	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-F	7/12/19											
2-Sa	7/13/19											
3-Su	7/14/19											
3-M	7/15/19											
3-T	7/16/19											
3-W	7/17/19											
3-Th	7/18/19	<5*	8.44	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
3-F	7/19/19											
3-Sa	7/20/19											
4-Su	7/21/19											
4-M	7/22/19											
4-T	7/23/19											
4-W	7/24/19											
4-Th	7/25/19	<5*	8.47	<1	<250	J 66	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
4-F	7/26/19											
4-Sa	7/27/19											
5-Su	7/28/19											
5-M	7/29/19											
5-T	7/30/19											
5-W	7/31/19											
Daily Minimum			7.44									
			>= 6.0 (RO)									
Daily Maximum		<5*	8.47	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-M	7/1/19		
1-T	7/2/19		
1-W	7/3/19	C	C
1-Th	7/4/19		
1-F	7/5/19		
1-Sa	7/6/19		
2-Su	7/7/19		
2-M	7/8/19		
2-T	7/9/19		
2-W	7/10/19		
2-Th	7/11/19	<0.026	<0.014
2-F	7/12/19		
2-Sa	7/13/19		
3-Su	7/14/19		
3-M	7/15/19		
3-T	7/16/19		
3-W	7/17/19		
3-Th	7/18/19	<0.026	<0.014
3-F	7/19/19		
3-Sa	7/20/19		
4-Su	7/21/19		
4-M	7/22/19		
4-T	7/23/19		
4-W	7/24/19		
4-Th	7/25/19	<0.027	<0.014
4-F	7/26/19		
4-Sa	7/27/19		
5-Su	7/28/19		
5-M	7/29/19		
5-T	7/30/19		
5-W	7/31/19		
Daily Minimum			
Daily Maximum		<0.027 Report Only	<0.014 Report Only



Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Flow Gallons/minute (gpm)	Daily Maximum	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	7/11/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	7/18/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	7/25/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

Signature

8/19/2019 4:55:13 PM

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 08/01/2019 - 08/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzobifluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokifluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,2,3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Th	8/1/19	50.0	7.9	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
1-F	8/2/19											
1-Sa	8/3/19											
2-Su	8/4/19											
2-M	8/5/19											
2-T	8/6/19											
2-W	8/7/19											
2-Th	8/8/19	85.0	7.64	<1	<250	J 74	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-F	8/9/19											
2-Sa	8/10/19											
3-Su	8/11/19											
3-M	8/12/19											
3-T	8/13/19											
3-W	8/14/19											
3-Th	8/15/19	83.2	8.06	<1	<250	<110	J 0.009	<0.0062	<0.013	<0.0062	<0.016	J 0.0062
3-F	8/16/19											
3-Sa	8/17/19											
4-Su	8/18/19											
4-M	8/19/19											
4-T	8/20/19											
4-W	8/21/19	77.3	8.55	<1	<250	<120	<0.005	<0.0062	<0.013	<0.0062	<0.015	<0.0062
4-Th	8/22/19											
4-F	8/23/19											
4-Sa	8/24/19											
5-Su	8/25/19											
5-M	8/26/19											
5-T	8/27/19											
5-W	8/28/19											
5-Th	8/29/19	J 47*	8.40	<1	<250	<110	<0.006	<0.0063	<0.014	<0.0063	<0.016	<0.0063
5-F	8/30/19											
5-Sa	8/31/19											
Daily Minimum			7.64									
			>= 6.0 (RO)									
Daily Maximum		85	8.55	<1	<250	<120	<0.009	<0.014	<0.014	<0.012	<0.016	<0.011
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Th	8/1/19	<0.027	<0.014
1-F	8/2/19		
1-Sa	8/3/19		
2-Su	8/4/19		
2-M	8/5/19		
2-T	8/6/19		
2-W	8/7/19		
2-Th	8/8/19	<0.027	<0.014
2-F	8/9/19		
2-Sa	8/10/19		
3-Su	8/11/19		
3-M	8/12/19		
3-T	8/13/19		
3-W	8/14/19		
3-Th	8/15/19	<0.013	<0.0062
3-F	8/16/19		
3-Sa	8/17/19		
4-Su	8/18/19		
4-M	8/19/19		
4-T	8/20/19		
4-W	8/21/19	<0.013	<0.0062
4-Th	8/22/19		
4-F	8/23/19		
4-Sa	8/24/19		
5-Su	8/25/19		
5-M	8/26/19		
5-T	8/27/19		
5-W	8/28/19		
5-Th	8/29/19	<0.014	<0.0063
5-F	8/30/19		
5-Sa	8/31/19		
Daily Minimum			
Daily Maximum		<0.027 Report Only	<0.014 Report Only



Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Flow Gallons/minute (gpm)	8/29/2019	J 47	Value not recorded during field event. 195,457 gallons went through the system between 8/21/19 and 9/5/2019 over 69.3 operating hours. The average flow rate for this period is 47 gallons per minute.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

9/24/2019 12:24:37 PM

Signature**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 09/01/2019 - 09/30/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokluoranthene (1,1,12-benzokluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,2,3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Su	9/1/19											
1-M	9/2/19											
1-T	9/3/19											
1-W	9/4/19											
1-Th	9/5/19	71.60	8.21	<1	<250	<110	<0.005	<0.0061	<0.013	<0.0061	<0.015	<0.0061
1-F	9/6/19											
1-Sa	9/7/19											
2-Su	9/8/19											
2-M	9/9/19	73.30	7.92	<1	<250	<120	<0.006	<0.0063	<0.014	<0.0063	<0.016	<0.0063
2-T	9/10/19											
2-W	9/11/19											
2-Th	9/12/19											
2-F	9/13/19											
2-Sa	9/14/19											
3-Su	9/15/19	C	C	C	C	C	C	C	C	C	C	C
3-M	9/16/19											
3-T	9/17/19											
3-W	9/18/19											
3-Th	9/19/19											
3-F	9/20/19											
3-Sa	9/21/19											
4-Su	9/22/19											
4-M	9/23/19	78.80	7.38	<1	<250	<110	<0.010	<0.016	<0.012	<0.013	<0.018	<0.012
4-T	9/24/19											
4-W	9/25/19											
4-Th	9/26/19											
4-F	9/27/19											
4-Sa	9/28/19											
5-Su	9/29/19											
5-M	9/30/19											
Daily Minimum			7.38 ≥ 6.0 (RO)									
Daily Maximum		78.8 ≤ 100 (RO)	8.21 ≤ 9.0 (RO)	<1 ≤ 16 (RO)	<250 ≤ 800 (RO)	<120 ≤ 500 (RO)	<0.01 ≤ 0.05 (RO)	<0.016 Report Only	<0.014 Report Only	<0.013 Report Only	<0.018 Report Only	<0.012 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Su	9/1/19		
1-M	9/2/19		
1-T	9/3/19		
1-W	9/4/19		
1-Th	9/5/19	<0.013	<0.0061
1-F	9/6/19		
1-Sa	9/7/19		
2-Su	9/8/19		
2-M	9/9/19	<0.014	<0.0063
2-T	9/10/19		
2-W	9/11/19		
2-Th	9/12/19		
2-F	9/13/19		
2-Sa	9/14/19		
3-Su	9/15/19	C	C
3-M	9/16/19		
3-T	9/17/19		
3-W	9/18/19		
3-Th	9/19/19		
3-F	9/20/19		
3-Sa	9/21/19		
4-Su	9/22/19		
4-M	9/23/19	<0.029	<0.016
4-T	9/24/19		
4-W	9/25/19		
4-Th	9/26/19		
4-F	9/27/19		
4-Sa	9/28/19		
5-Su	9/29/19		
5-M	9/30/19		
Daily Minimum			
Daily Maximum		<0.029	<0.016
		Report Only	Report Only



I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

10/21/2019 4:38:41 PM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 10/01/2019 - 10/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzob Fluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzok Fluoranthene (1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,2,3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-T	10/1/19											
1-W	10/2/19											
1-Th	10/3/19											
1-F	10/4/19	<5*	8.15	<1	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
1-Sa	10/5/19											
2-Su	10/6/19											
2-M	10/7/19											
2-T	10/8/19											
2-W	10/9/19											
2-Th	10/10/19	<5*	7.88	<1	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
2-F	10/11/19											
2-Sa	10/12/19											
3-Su	10/13/19											
3-M	10/14/19											
3-T	10/15/19											
3-W	10/16/19											
3-Th	10/17/19	<5*	8.12	<1	<250	170	<0.010	<0.0066	<0.014	<0.0066	<0.0066	<0.016
3-F	10/18/19											
3-Sa	10/19/19											
4-Su	10/20/19											
4-M	10/21/19											
4-T	10/22/19	<5*	8.18	1.9	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
4-W	10/23/19											
4-Th	10/24/19											
4-F	10/25/19											
4-Sa	10/26/19											
5-Su	10/27/19											
5-M	10/28/19											
5-T	10/29/19											
5-W	10/30/19											
5-Th	10/31/19	<5*	7.88	B 1	<250	<110	<0.010	<0.015	<0.011	<0.013	<0.017	<0.011
Daily Minimum			7.88									
			>= 6.0 (RO)									
Daily Maximum		B 5*	8.18	1.9	<250	170	<0.01	<0.015	<0.014	<0.013	<0.017	<0.016
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-T	10/1/19		
1-W	10/2/19		
1-Th	10/3/19		
1-F	10/4/19	<0.028	<0.015
1-Sa	10/5/19		
2-Su	10/6/19		
2-M	10/7/19		
2-T	10/8/19		
2-W	10/9/19		
2-Th	10/10/19	<0.028	<0.015
2-F	10/11/19		
2-Sa	10/12/19		
3-Su	10/13/19		
3-M	10/14/19		
3-T	10/15/19		
3-W	10/16/19		
3-Th	10/17/19	<0.0066	<0.014
3-F	10/18/19		
3-Sa	10/19/19		
4-Su	10/20/19		
4-M	10/21/19		
4-T	10/22/19	<0.028	<0.015
4-W	10/23/19		
4-Th	10/24/19		
4-F	10/25/19		
4-Sa	10/26/19		
5-Su	10/27/19		
5-M	10/28/19		
5-T	10/29/19		
5-W	10/30/19		
5-Th	10/31/19	<0.027	<0.015
Daily Minimum			
Daily Maximum		<0.028	<0.015
		Report Only	Report Only



Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Flow Gallons/minute (gpm)	Daily Maximum	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	10/4/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	10/10/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	10/17/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	10/22/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	10/31/2019	B <5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

Signature

11/27/2019 10:39:09 AM

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 11/01/2019 - 11/30/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzobfluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokfluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
1-F	11/1/19											
1-Sa	11/2/19											
2-Su	11/3/19											
2-M	11/4/19											
2-T	11/5/19											
2-W	11/6/19											
2-Th	11/7/19	Bj5*	8.00	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-F	11/8/19											
2-Sa	11/9/19											
3-Su	11/10/19											
3-M	11/11/19											
3-T	11/12/19											
3-W	11/13/19											
3-Th	11/14/19	Bj5*	8.33	<3	<250	<110	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
3-F	11/15/19											
3-Sa	11/16/19											
4-Su	11/17/19											
4-M	11/18/19											
4-T	11/19/19											
4-W	11/20/19											
4-Th	11/21/19	Bj5*	8.13	<1	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
4-F	11/22/19											
4-Sa	11/23/19											
5-Su	11/24/19											
5-M	11/25/19	Bj5*	8.33	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
5-T	11/26/19											
5-W	11/27/19											
5-Th	11/28/19											
5-F	11/29/19											
5-Sa	11/30/19											
Daily Minimum			8.00 ≥ 6.0 (RO)									
Daily Maximum		Bj5*	8.33	<3	<250	<120	<0.01	<0.015	<0.012	<0.013	<0.017	<0.012
		≤ 100 (RO)	≤ 9.0 (RO)	≤ 16 (RO)	≤ 800 (RO)	≤ 500 (RO)	≤ 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-F	11/1/19		
1-Sa	11/2/19		
2-Su	11/3/19		
2-M	11/4/19		
2-T	11/5/19		
2-W	11/6/19		
2-Th	11/7/19	<0.026	<0.014
2-F	11/8/19		
2-Sa	11/9/19		
3-Su	11/10/19		
3-M	11/11/19		
3-T	11/12/19		
3-W	11/13/19		
3-Th	11/14/19	<0.027	<0.015
3-F	11/15/19		
3-Sa	11/16/19		
4-Su	11/17/19		
4-M	11/18/19		
4-T	11/19/19		
4-W	11/20/19		
4-Th	11/21/19	<0.028	<0.015
4-F	11/22/19		
4-Sa	11/23/19		
5-Su	11/24/19		
5-M	11/25/19	<0.026	<0.014
5-T	11/26/19		
5-W	11/27/19		
5-Th	11/28/19		
5-F	11/29/19		
5-Sa	11/30/19		
Daily Minimum			
Daily Maximum		<0.028	<0.015
		Report Only	Report Only



Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Flow Gallons/minute (gpm)	Daily Maximum	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	11/7/2019	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	11/14/2019	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	11/21/2019	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.
DPE	Flow Gallons/minute (gpm)	11/25/2019	B 5	No continuous discharge from the system occurred during this period. Forced discharge conducted temporarily to collect sample. Discharge rate was less than 5 gallons per minute.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Garrick Jauregui

12/26/2019 9:40:56 AM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 12/01/2019 - 12/31/2019

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated		Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzokluoranthene (1,1,12-benzokluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Su	12/1/19											
1-M	12/2/19	<5*	8.23	<3	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.018	<0.012
1-T	12/3/19											
1-W	12/4/19											
1-Th	12/5/19											
1-F	12/6/19											
1-Sa	12/7/19											
2-Su	12/8/19											
2-M	12/9/19											
2-T	12/10/19											
2-W	12/11/19											
2-Th	12/12/19	<5*	8.12	<1	<250	<120	0.012	0.016	0.013	0.012	<0.016	<0.011
2-F	12/13/19											
2-Sa	12/14/19											
3-Su	12/15/19											
3-M	12/16/19	<5*	7.00	<1	<250	<120	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
3-T	12/17/19											
3-W	12/18/19											
3-Th	12/19/19											
3-F	12/20/19											
3-Sa	12/21/19											
4-Su	12/22/19											
4-M	12/23/19	<5*	6.58	<1	<250	<110	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
4-T	12/24/19											
4-W	12/25/19											
4-Th	12/26/19											
4-F	12/27/19											
4-Sa	12/28/19											
5-Su	12/29/19											
5-M	12/30/19											
5-T	12/31/19											
Daily Minimum			6.58									
			>= 6.0 (RO)									
Daily Maximum		<5*	8.23	<3	<250	<120	<0.012	0.016	0.013	<0.013	<0.018	<0.012
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Su	12/1/19		
1-M	12/2/19	<0.028	<0.015
1-T	12/3/19		
1-W	12/4/19		
1-Th	12/5/19		
1-F	12/6/19		
1-Sa	12/7/19		
2-Su	12/8/19		
2-M	12/9/19		
2-T	12/10/19		
2-W	12/11/19		
2-Th	12/12/19	<0.026	0.015
2-F	12/13/19		
2-Sa	12/14/19		
3-Su	12/15/19		
3-M	12/16/19	<0.028	<0.015
3-T	12/17/19		
3-W	12/18/19		
3-Th	12/19/19		
3-F	12/20/19		
3-Sa	12/21/19		
4-Su	12/22/19		
4-M	12/23/19	<0.027	<0.014
4-T	12/24/19		
4-W	12/25/19		
4-Th	12/26/19		
4-F	12/27/19		
4-Sa	12/28/19		
5-Su	12/29/19		
5-M	12/30/19		
5-T	12/31/19		
Daily Minimum			
Daily Maximum		<0.028	0.015
		Report Only	Report Only

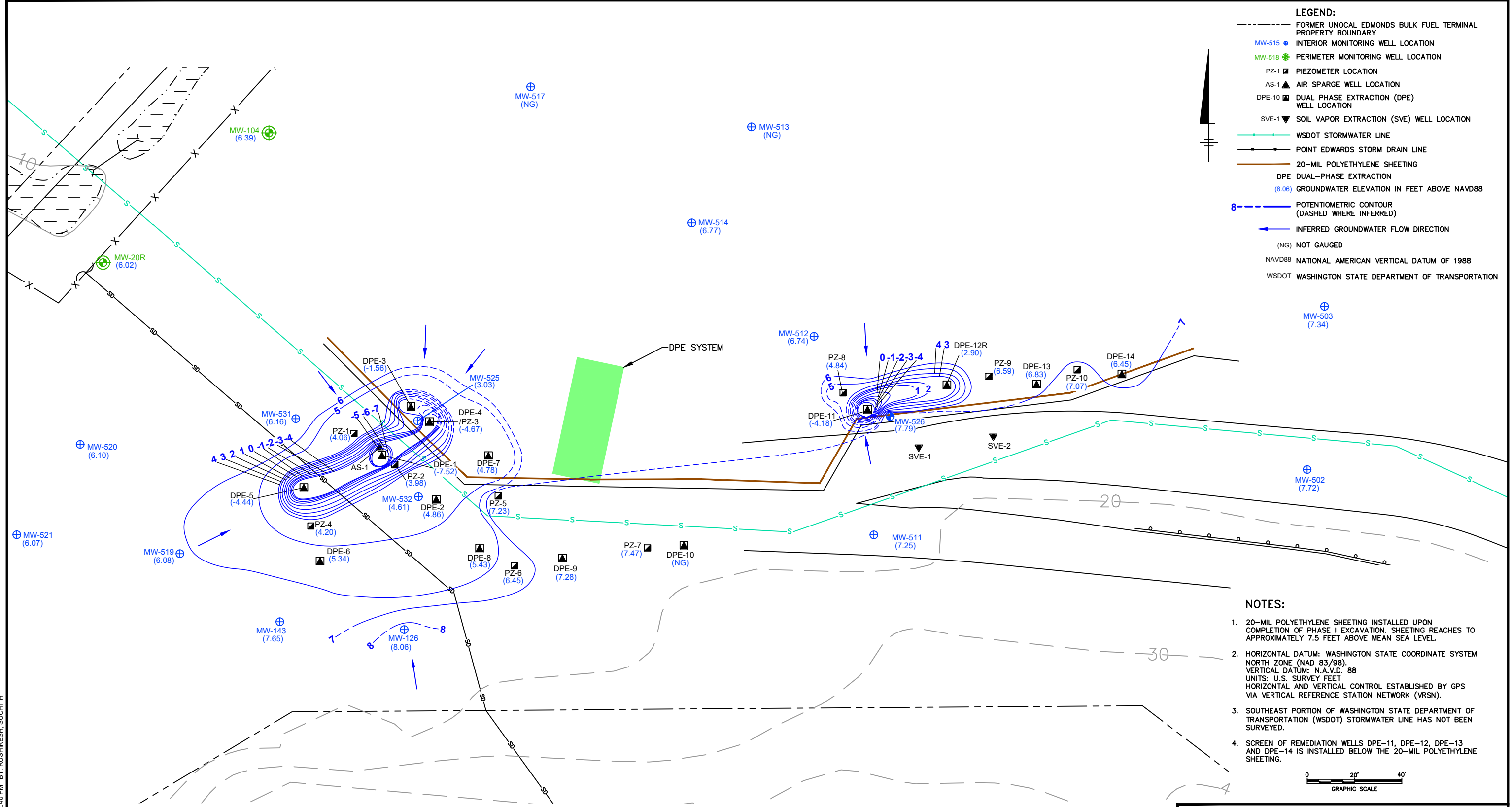
APPENDIX F

Potentiometric Surface Maps

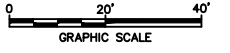


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 XREFS: IMAGES: PROJECTNAME: RECORD-INT-ACT-X-RECORDTOPO

- LEGEND:**
- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - PZ-1 ▣ PIEZOMETER LOCATION
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - DPE DUAL-PHASE EXTRACTION
 - (8.06) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 8--- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
 - ← INFERRED GROUNDWATER FLOW DIRECTION
 - (NG) NOT GAUGED
 - NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
 - WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
 VERTICAL DATUM: N.A.V.D. 88
 UNITS: U.S. SURVEY FEET
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 4. SCREEN OF REMEDIATION WELLS DPE-11, DPE-12, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14
Status	On	Off	On	On	On	Off	Off	Off	Off	Off	On	On	Off	Off

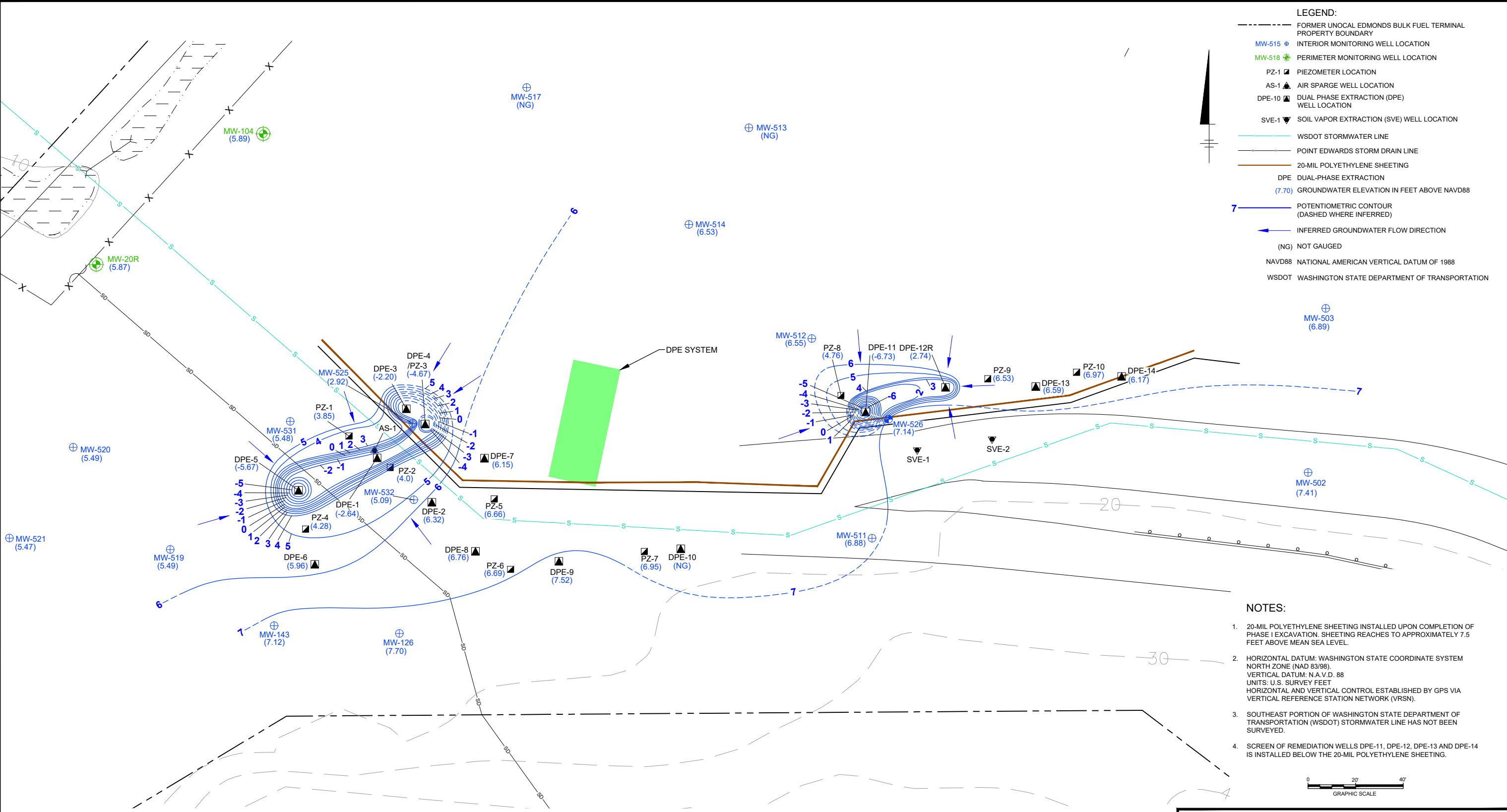
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
 FEBRUARY 21, 2019**

FIGURE 1

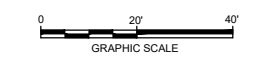
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XREFS: IMAGES: PROJECTNAME: RECORD-INT-ACT-X-RECORDTOPO



- LEGEND:**
- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - PZ-1 ▣ PIEZOMETER LOCATION
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - DPE DUAL-PHASE EXTRACTION
 - (7.70) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 7 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
 - ← INFERRED GROUNDWATER FLOW DIRECTION
 - (NG) NOT GAUGED
 - NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
 - WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 4. SCREEN OF REMEDIATION WELLS DPE-11, DPE-12, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14
Status	On	Off	On	On	On	Off	Off	Off	Off	Off	On	On	Off	Off

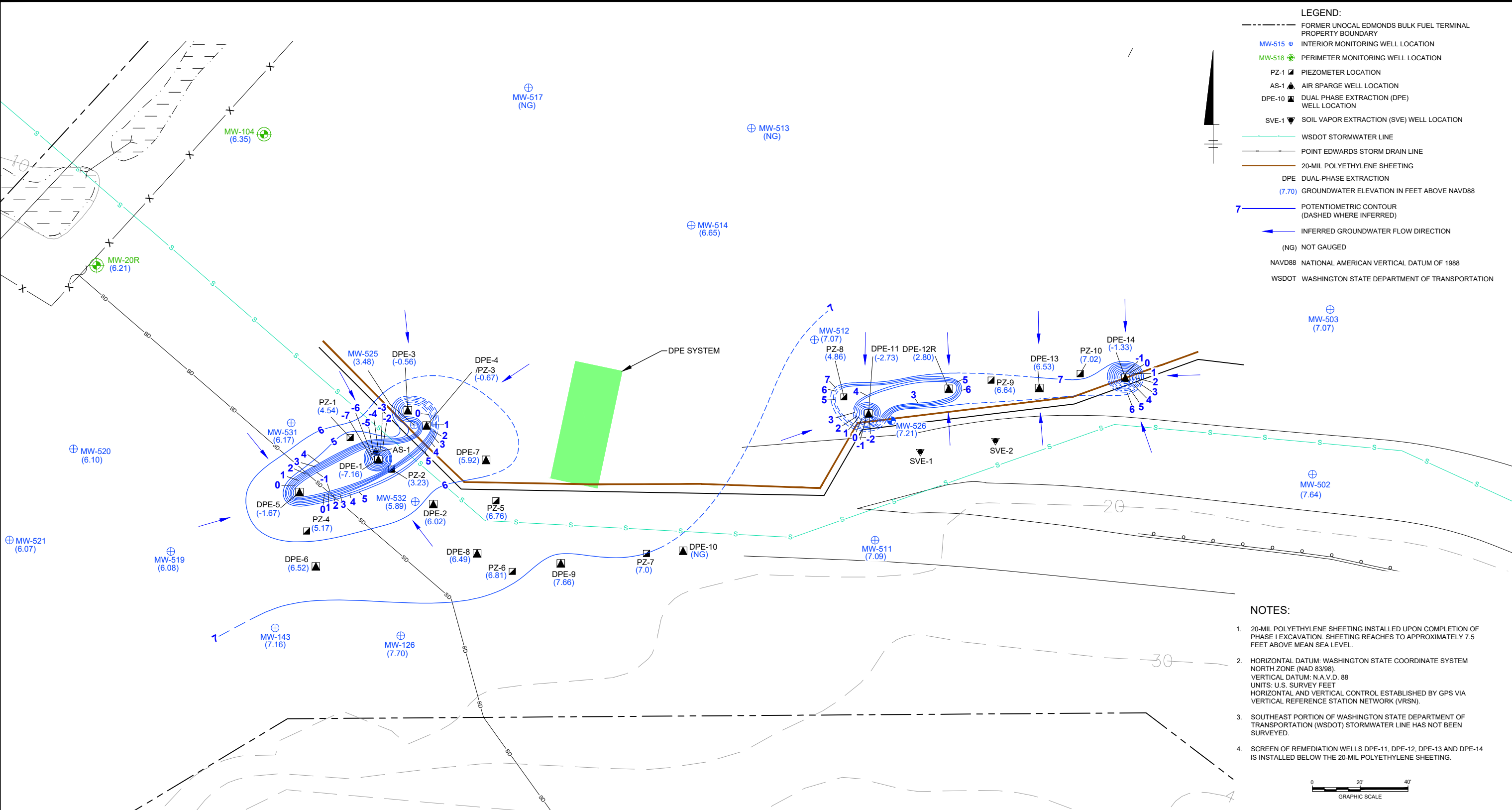
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
MARCH 14, 2019**

ARCADIS Design & Consultancy
for natural and built assets

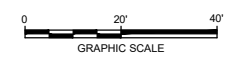
FIGURE
1

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PM: (R) Read, TM: (C) Plot, Lyr: (C) ON+ OFF=REF
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- LEGEND:**
- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - PZ-1 ▣ PIEZOMETER LOCATION
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - DPE DUAL-PHASE EXTRACTION
 - (7.70) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 7 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
 - ➔ INFERRED GROUNDWATER FLOW DIRECTION
 - (NG) NOT GAUGED
 - NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
 - WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).
 VERTICAL DATUM: N.A.V.D. 88
 UNITS: U.S. SURVEY FEET
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 4. SCREEN OF REMEDIATION WELLS DPE-11, DPE-12, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



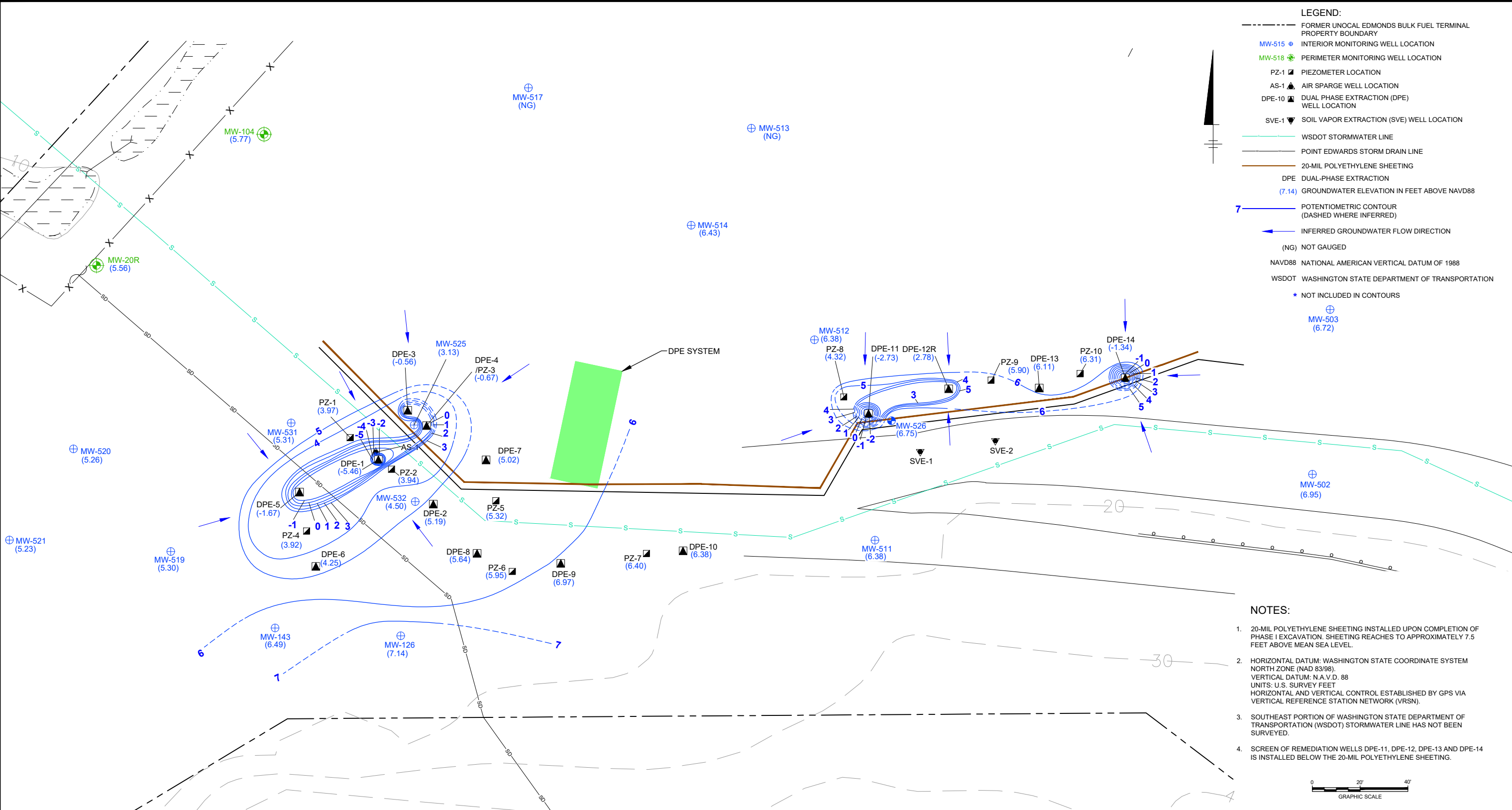
DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14
Status	On	Off	On	On	On	Off	Off	Off	Off	Off	On	On	Off	On

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
 APRIL 11, 2019**



CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PIC: (Cpt) PM: (R/Eng) TM: (Cpt) LXR: (Cpt) LYM: (Cpt) OFF: (REF)
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 RECORD-INT-ACT-X-RECORDTOPO



DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14
Status	On	Off	On	On	On	Off	Off	Off	Off	Off	On	On	Off	On

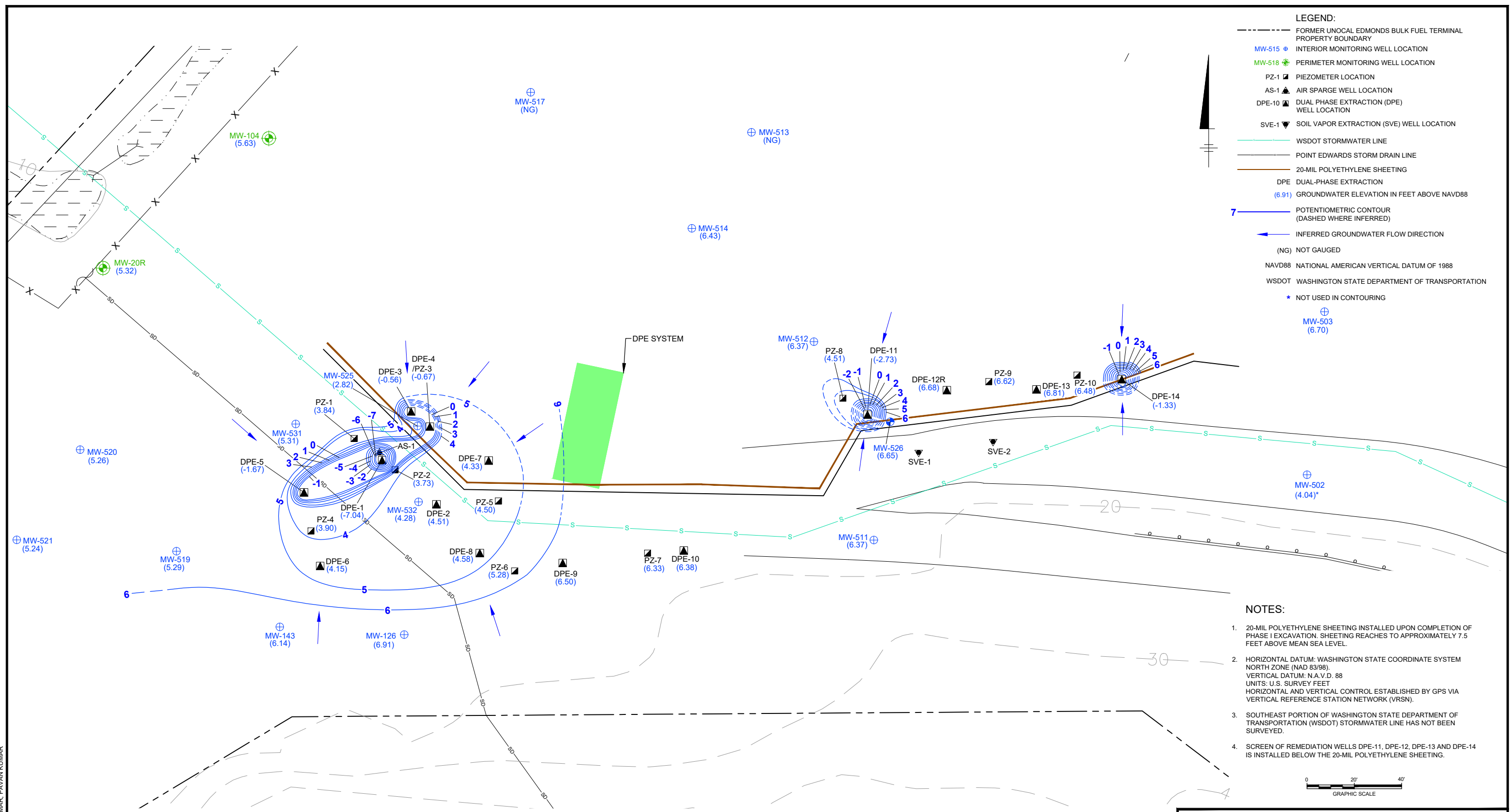
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
 MAY 9, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

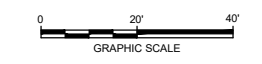
FIGURE
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- LEGEND:**
- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
 - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
 - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
 - PZ-1 ▣ PIEZOMETER LOCATION
 - AS-1 ▲ AIR SPARGE WELL LOCATION
 - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
 - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
 - WSDOT STORMWATER LINE
 - POINT EDWARDS STORM DRAIN LINE
 - 20-MIL POLYETHYLENE SHEETING
 - DPE DUAL-PHASE EXTRACTION
 - (6.91) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
 - 7 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
 - ← INFERRED GROUNDWATER FLOW DIRECTION
 - (NG) NOT GAUGED
 - NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
 - WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
 - * NOT USED IN CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
 2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
 3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 4. SCREEN OF REMEDIATION WELLS DPE-11, DPE-12, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14
Status	On	Off	On	On	On	Off	Off	Off	Off	Off	On	Off	Off	On

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
 JUNE 6, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

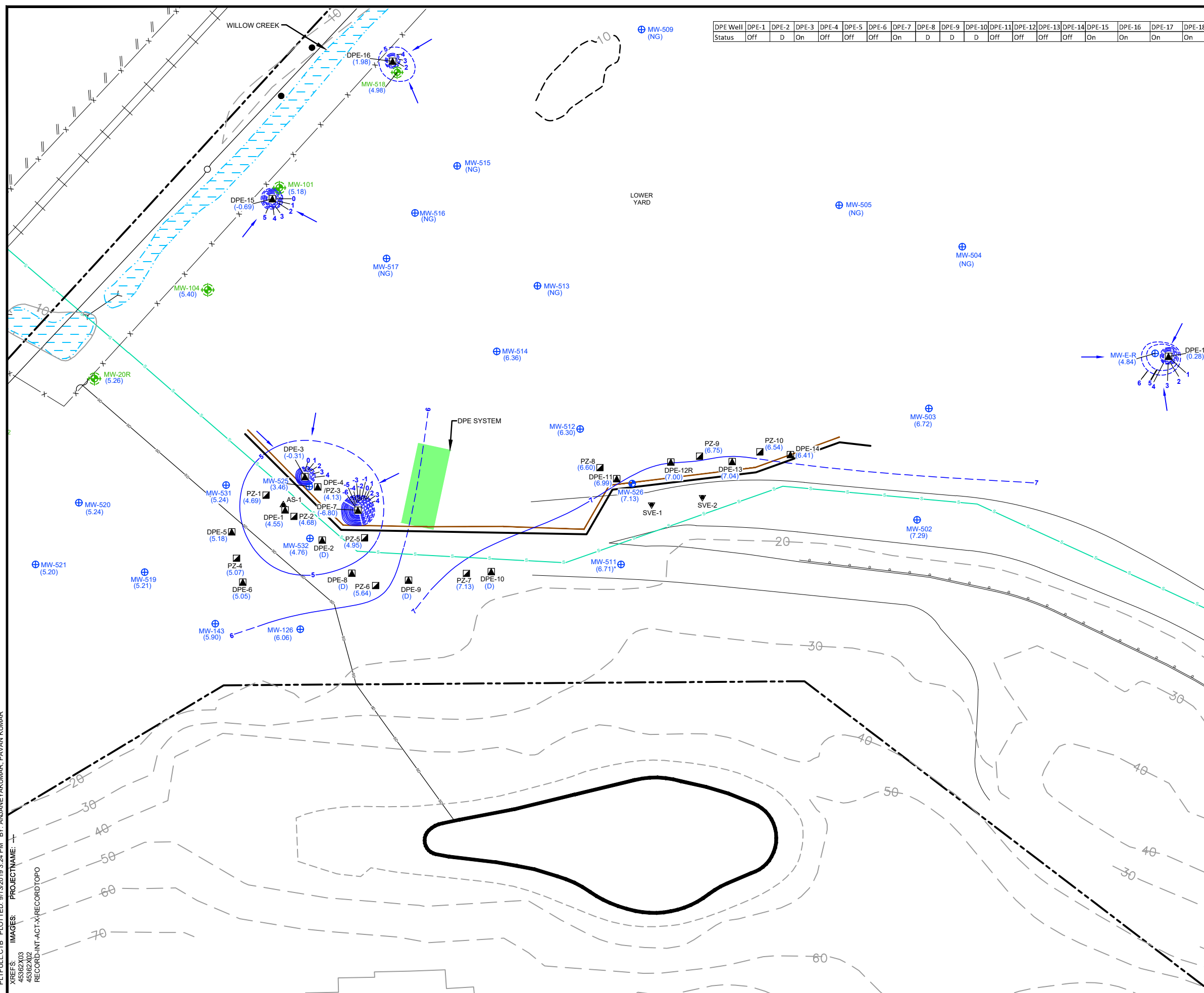
FIGURE
1

CITY: MINNEAPOLIS, MN DIV: GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PM: (R) REP: TM: (C) PLOT: LYN: (C) ON: (N) OFF: (F) REF: C:\Users\PA01041\OneDrive\Documents\ArcGIS\Projects\Edmonds\Public Review Draft\2019\B045362\001101-DWG\45362\001101-DWG.dwg ACADVER: 23.05 (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLT: FULL.CTB PLOTTED: 9/13/2019 3:24 PM BY: ANJANEYAKUMAR, PAVAN KUMAR XREFS: IMAGES: PROJECTNAME: RECORD-INT-ACT-XRECORD/TOPO 45362\03 45362\02

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	Off	D	On	Off	Off	Off	On	D	D	D	Off	Off	Off	Off	On	On	On	On

LEGEND:

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 (NG) INTERIOR MONITORING WELL LOCATION
- MW-518 (NG) PERIMETER MONITORING WELL LOCATION
- PZ-1 (NG) PIEZOMETER LOCATION
- AS-1 (NG) AIR SPARGE WELL LOCATION
- DPE-10 (NG) DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 (NG) SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.29) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
- * NOT USED IN CONTOURING



NOTES:

- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
- HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
- SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
- SCREEN OF REMEDIATION WELLS DPE-11, DPE-12, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
AUGUST 21, 2019**

ARCADIS Design & Consultancy
for natural land built assets

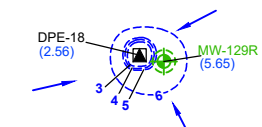
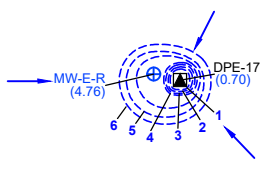
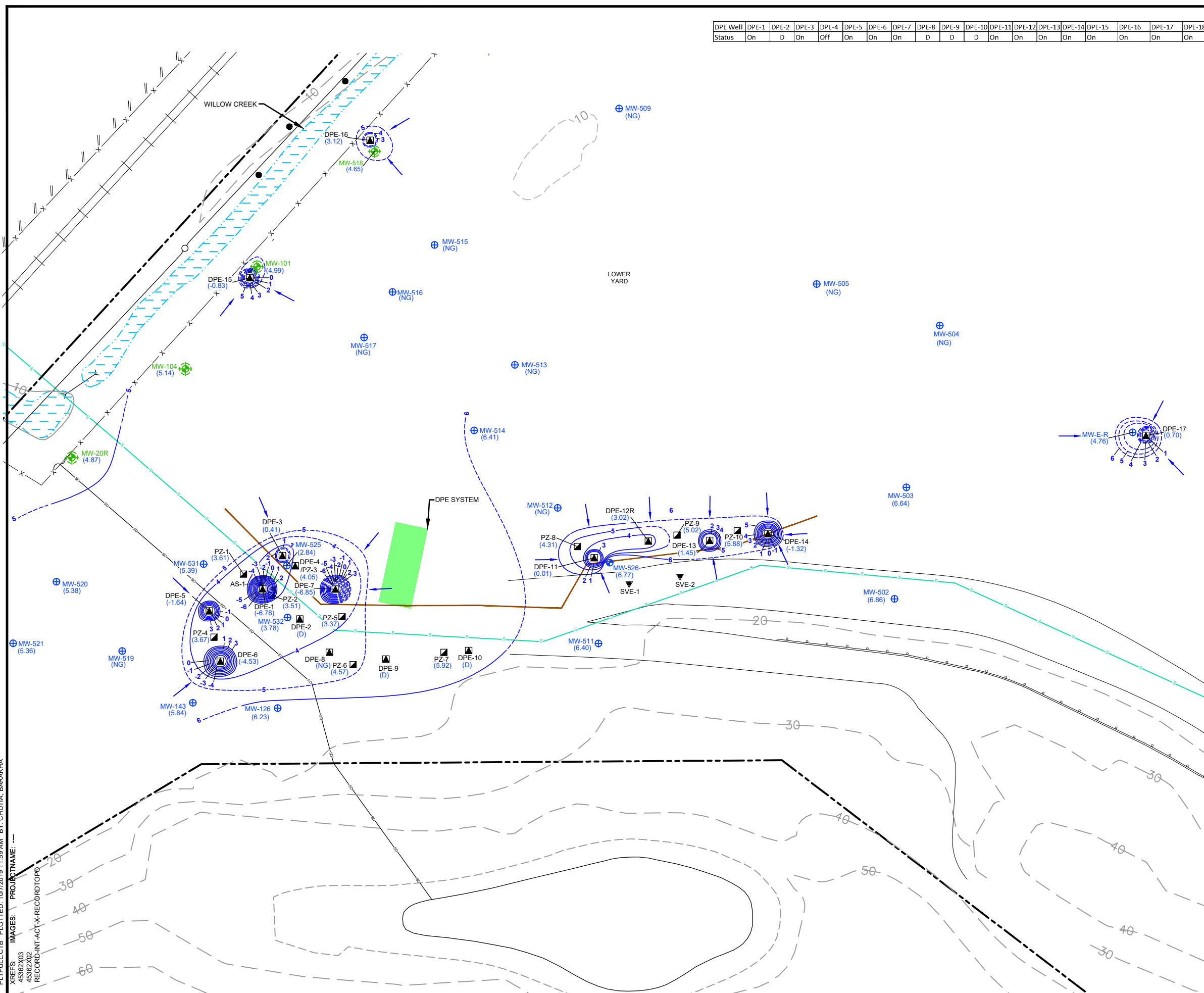
FIGURE
1

CITY: MINNEAPOLIS, MN DIV: GROUP: ENV/CAD, DB: R. OBERLANDER, LD: R. OBERLANDER, PIC: (Cpt), PM: (Read), TM: (Cpt), LTR: (Cpt), ON: (NG) OFF: (REF)
 C:\Users\chutia\77\BIM\360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\Edmonds\Public Review Draft\2019\B04532\001101-DWG\4532D03-X-Sept19 Potentiometric Map.dwg LAYOUT: 1 SAVER: 10/4/2019 10:12 AM ACADVER: 23.05 (LMS TECH) PAGES: 1 PLOTSTYLE: TABLE
 PLOT: FULL CTB PLOTTED: 10/7/2019 11:59 AM BY: CHUTIA, BARAKHA

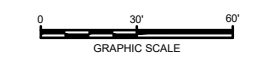
DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	On	On	D	D	D	On	On	On	On	On	On	On	On

LEGEND:

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 INTERIOR MONITORING WELL LOCATION
- MW-518 PERIMETER MONITORING WELL LOCATION
- PZ-1 PIEZOMETER LOCATION
- AS-1 AIR SPARGE WELL LOCATION
- DPE-10 DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (6.86) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 6 POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
- * NOT USED IN CONTOURING



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
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 - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
 - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP
 SEPTEMBER 24, 2019**

ARCADIS Design & Consultancy
 for natural and built assets

FIGURE
1

APPENDIX G

Outfall #002 Laboratory Analytical Results and Chain of Custody Documentation



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

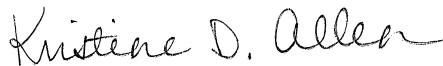
TestAmerica Job ID: 580-83049-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:

1/14/2019 2:12:43 PM

Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary	13
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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Job ID: 580-83049-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-83049-1

Comments

No additional comments.

Receipt

The samples were received on 1/3/2019 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The continuing calibration verification (CCV) associated with batch 580-292593 recovered above the upper control limit for Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCVIS 580-292593/3), (LCS 580-292532/2-A) and (MB 580-292532/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Outfall #002 (580-83049-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83049-1

Date Collected: 01/02/19 13:00

Matrix: Water

Date Received: 01/03/19 12:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/04/19 16:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					01/04/19 16:54	1
Toluene-d8 (Surr)	97		79 - 122					01/04/19 16:54	1
4-Bromofluorobenzene (Surr)	102		78 - 119					01/04/19 16:54	1
Dibromofluoromethane (Surr)	102		70 - 120					01/04/19 16:54	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					01/04/19 16:54	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		01/04/19 08:54	01/07/19 18:03	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		01/04/19 08:54	01/07/19 18:03	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		01/04/19 08:54	01/07/19 18:03	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		01/04/19 08:54	01/07/19 18:03	1
Chrysene	ND		0.11	0.017	ug/L		01/04/19 08:54	01/07/19 18:03	1
Dibenz[a,h]anthracene	ND		0.11	0.011	ug/L		01/04/19 08:54	01/07/19 18:03	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		01/04/19 08:54	01/07/19 18:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	74		53 - 120				01/04/19 08:54	01/07/19 18:03	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/04/19 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		50 - 150					01/04/19 18:09	1
Trifluorotoluene (Surr)	110		50 - 150					01/04/19 18:09	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.20		0.11	0.067	mg/L		01/11/19 07:36	01/11/19 23:50	1
Motor Oil (>C24-C36)	0.29	J	0.36	0.099	mg/L		01/11/19 07:36	01/11/19 23:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	95		50 - 150				01/11/19 07:36	01/11/19 23:50	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83049-2

Date Collected: 01/02/19 13:00

Matrix: Water

Date Received: 01/03/19 12:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/04/19 17:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123					01/04/19 17:19	1
Toluene-d8 (Surr)	97		79 - 122					01/04/19 17:19	1
4-Bromofluorobenzene (Surr)	104		78 - 119					01/04/19 17:19	1
Dibromofluoromethane (Surr)	103		70 - 120					01/04/19 17:19	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					01/04/19 17:19	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/04/19 17:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		50 - 150					01/04/19 17:42	1
Trifluorotoluene (Surr)	115		50 - 150					01/04/19 17:42	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-292545/5

Matrix: Water

Analysis Batch: 292545

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/04/19 11:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123		01/04/19 11:19	1
Toluene-d8 (Surr)	97		79 - 122		01/04/19 11:19	1
4-Bromofluorobenzene (Surr)	104		78 - 119		01/04/19 11:19	1
Dibromofluoromethane (Surr)	101		70 - 120		01/04/19 11:19	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		01/04/19 11:19	1

Lab Sample ID: LCS 580-292545/6

Matrix: Water

Analysis Batch: 292545

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.73		ug/L		97	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	103		74 - 123
Toluene-d8 (Surr)	96		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	102		70 - 120
1,2-Dichloroethane-d4 (Surr)	98		70 - 120

Lab Sample ID: LCSD 580-292545/7

Matrix: Water

Analysis Batch: 292545

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.83		ug/L		98	37 - 151	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	102		74 - 123
Toluene-d8 (Surr)	96		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	97		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-292532/1-A

Matrix: Water

Analysis Batch: 292593

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 292532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/04/19 08:54	01/04/19 16:23	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/04/19 08:54	01/04/19 16:23	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/04/19 08:54	01/04/19 16:23	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-292532/1-A

Matrix: Water

Analysis Batch: 292593

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 292532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/04/19 08:54	01/04/19 16:23	1
Chrysene	ND		0.10	0.016	ug/L		01/04/19 08:54	01/04/19 16:23	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/04/19 08:54	01/04/19 16:23	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/04/19 08:54	01/04/19 16:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	54		53 - 120	01/04/19 08:54	01/04/19 16:23	1

Lab Sample ID: MB 580-292532/1-A

Matrix: Water

Analysis Batch: 292656

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 292532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/04/19 08:54	01/07/19 16:47	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/04/19 08:54	01/07/19 16:47	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/04/19 08:54	01/07/19 16:47	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/04/19 08:54	01/07/19 16:47	1
Chrysene	ND		0.10	0.016	ug/L		01/04/19 08:54	01/07/19 16:47	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/04/19 08:54	01/07/19 16:47	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/04/19 08:54	01/07/19 16:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	68		53 - 120	01/04/19 08:54	01/07/19 16:47	1

Lab Sample ID: LCS 580-292532/2-A

Matrix: Water

Analysis Batch: 292593

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 292532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	4.78		ug/L		119	61 - 120
Benzo[a]pyrene	4.00	4.43		ug/L		111	65 - 120
Benzo[b]fluoranthene	4.00	4.33		ug/L		108	58 - 120
Benzo[k]fluoranthene	4.00	4.78		ug/L		120	58 - 120
Chrysene	4.00	4.30		ug/L		108	58 - 120
Dibenz(a,h)anthracene	4.00	4.56		ug/L		114	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	4.43		ug/L		111	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	65		53 - 120

Lab Sample ID: LCSD 580-292532/3-A

Matrix: Water

Analysis Batch: 292656

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 292532

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.77		ug/L		94	61 - 120	NaN	16
Benzo[a]pyrene	4.00	4.02		ug/L		101	65 - 120	NaN	17

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-292532/3-A

Matrix: Water

Analysis Batch: 292656

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 292532

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzo[b]fluoranthene	4.00	4.34		ug/L		109	58 - 120	NaN	20
Benzo[k]fluoranthene	4.00	4.34		ug/L		108	58 - 120	NaN	20
Chrysene	4.00	4.19		ug/L		105	58 - 120	NaN	16
Dibenz(a,h)anthracene	4.00	4.08		ug/L		102	60 - 125	NaN	15
Indeno[1,2,3-cd]pyrene	4.00	4.09		ug/L		102	56 - 120	NaN	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	76		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-292583/6

Matrix: Water

Analysis Batch: 292583

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/04/19 16:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		50 - 150		01/04/19 16:20	1
Trifluorotoluene (Surr)	110		50 - 150		01/04/19 16:20	1

Lab Sample ID: LCS 580-292583/7

Matrix: Water

Analysis Batch: 292583

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.932		mg/L		93	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	83		50 - 150
Trifluorotoluene (Surr)	111		50 - 150

Lab Sample ID: LCSD 580-292583/8

Matrix: Water

Analysis Batch: 292583

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.939		mg/L		94	79 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		50 - 150
Trifluorotoluene (Surr)	108		50 - 150

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-292916/1-B

Matrix: Water

Analysis Batch: 292955

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 292916

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/11/19 07:36	01/11/19 22:45	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/11/19 07:36	01/11/19 22:45	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150				01/11/19 07:36	01/11/19 22:45	1

Lab Sample ID: LCS 580-292916/2-B

Matrix: Water

Analysis Batch: 292955

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 292916

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.77		mg/L		89	50 - 120
Motor Oil (>C24-C36)	2.00	2.10		mg/L		105	64 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	80		50 - 150				

Lab Sample ID: LCSD 580-292916/3-B

Matrix: Water

Analysis Batch: 292955

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 292916

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.79		mg/L		90	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.13		mg/L		107	64 - 120	2	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	97		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83049-1

Date Collected: 01/02/19 13:00

Matrix: Water

Date Received: 01/03/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	292545	01/04/19 16:54	TL1	TAL SEA
Total/NA	Prep	3510C			292532	01/04/19 08:54	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	292656	01/07/19 18:03	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	292583	01/04/19 18:09	CJB	TAL SEA
Total/NA	Prep	3510C			292916	01/11/19 07:36	KO	TAL SEA
Total/NA	Cleanup	3630C			292936	01/11/19 12:03	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	292955	01/11/19 23:50	TL1	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-83049-2

Date Collected: 01/02/19 13:00

Matrix: Water

Date Received: 01/03/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	292545	01/04/19 17:19	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	292583	01/04/19 17:42	CJB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83049-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83049-1	Outfall #002	Water	01/02/19 13:00	01/03/19 12:30
580-83049-2	Trip Blank	Water	01/02/19 13:00	01/03/19 12:30

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Rush
 Short Hold

Chain of Custody Record

Client: Arcadis Client Contact: Peter Campbell Date: 1/2/19 Chain of Custody Number: 35112
Address: 1190 Olive Way Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
Page _____ of _____

City: Seattle State: WA Zip Code: 98101 Sampler: Jason Little Lab Contact: _____
Project Name and Location (State): Edmonds Terminal (WA) Billing Contact: _____
Analysis (Attach list if more space is needed)

Contract/Purchase Order/Quote No. _____ Matrix: _____ Containers & Preservatives: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives														
			Air	Aqueous	Sed.	Soil	Uppres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other								
<u>Outfall #002</u>	<u>1/2/19</u>	<u>1300</u>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<u>TRIP BLANK</u>	<u>-</u>	<u>-</u>		<input checked="" type="checkbox"/>											<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					

Benzene EPA 024
NMPH-GV
NMPH-dy V/SJ
CPALS 82101

Loc: 580
83049
Spec. Cond: _____
* Benzene + CPAHC
w/quantifiable
level less than
ug/L.



580-83049 Chain of Custody

Therm. ID: A2 Cor: 2.5 Unc: 2.7
Cooler Dsc: Sm Green FedEx: _____
Packing: Bubble UPS: _____
Cust. Seal: Yes No Lab Cour: X
Blue Ice, Not Dry, None Other: _____

* Use standard
silica gel decant
11-7.55

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT QC Requirements (Specify): _____

Relinquished By Sign/Print	Date	Time	Received By Sign/Print	Date	Time
<u>[Signature]</u> Jason Little	<u>1/3/19</u>	<u>1230</u>	<u>[Signature]</u> Francisco Luna, Jr	<u>1/3/19</u>	<u>1230</u>

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83049-1

Login Number: 83049

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83257-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
1/18/2019 3:12:01 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Job ID: 580-83257-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-83257-1

Receipt

Two samples were received on 1/11/2019 2:08 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-293078 and analytical batch 580-293147 recovered outside control limits for the following analyte: Indeno[1,2,3-cd]pyrene. The LCS and LCSD recoveries met acceptance limits.

Method(s) 8270C SIM: The following sample was diluted due to the nature of the sample matrix: Outfall #002 (580-83257-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Outfall #002 (580-83257-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83257-1

Date Collected: 01/11/19 10:00

Matrix: Water

Date Received: 01/11/19 14:08

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/14/19 15:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	97		74 - 123					01/14/19 15:57	1
Toluene-d8 (Surr)	101		79 - 122					01/14/19 15:57	1
4-Bromofluorobenzene (Surr)	103		78 - 119					01/14/19 15:57	1
Dibromofluoromethane (Surr)	103		70 - 120					01/14/19 15:57	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120					01/14/19 15:57	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/15/19 08:45	01/17/19 20:49	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/15/19 08:45	01/17/19 20:49	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/15/19 08:45	01/17/19 20:49	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/15/19 08:45	01/17/19 20:49	1
Chrysene	ND		0.10	0.016	ug/L		01/15/19 08:45	01/17/19 20:49	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/15/19 08:45	01/17/19 20:49	1
Indeno[1,2,3-cd]pyrene	ND	*	0.050	0.014	ug/L		01/15/19 08:45	01/17/19 20:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	63		53 - 120				01/15/19 08:45	01/17/19 20:49	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/15/19 16:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		50 - 150					01/15/19 16:09	1
Trifluorotoluene (Surr)	113		50 - 150					01/15/19 16:09	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.072	J	0.11	0.067	mg/L		01/15/19 08:41	01/15/19 17:28	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		01/15/19 08:41	01/15/19 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150				01/15/19 08:41	01/15/19 17:28	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83257-2

Date Collected: 01/11/19 10:00

Matrix: Water

Date Received: 01/11/19 14:08

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/14/19 16:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123					01/14/19 16:22	1
Toluene-d8 (Surr)	102		79 - 122					01/14/19 16:22	1
4-Bromofluorobenzene (Surr)	102		78 - 119					01/14/19 16:22	1
Dibromofluoromethane (Surr)	102		70 - 120					01/14/19 16:22	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 120					01/14/19 16:22	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/15/19 15:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		50 - 150					01/15/19 15:42	1
Trifluorotoluene (Surr)	112		50 - 150					01/15/19 15:42	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-293001/5
Matrix: Water
Analysis Batch: 293001

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/14/19 10:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		01/14/19 10:58	1
Toluene-d8 (Surr)	102		79 - 122		01/14/19 10:58	1
4-Bromofluorobenzene (Surr)	102		78 - 119		01/14/19 10:58	1
Dibromofluoromethane (Surr)	100		70 - 120		01/14/19 10:58	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 120		01/14/19 10:58	1

Lab Sample ID: LCS 580-293001/6
Matrix: Water
Analysis Batch: 293001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.1		ug/L		101	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	97		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	103		78 - 119
Dibromofluoromethane (Surr)	101		70 - 120
1,2-Dichloroethane-d4 (Surr)	103		70 - 120

Lab Sample ID: LCSD 580-293001/7
Matrix: Water
Analysis Batch: 293001

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.4		ug/L		104	37 - 151	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	102		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-293078/1-A
Matrix: Water
Analysis Batch: 293147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293078

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/15/19 08:45	01/15/19 18:55	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/15/19 08:45	01/15/19 18:55	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/15/19 08:45	01/15/19 18:55	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-293078/1-A
Matrix: Water
Analysis Batch: 293147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293078

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/15/19 08:45	01/15/19 18:55	1
Chrysene	ND		0.10	0.016	ug/L		01/15/19 08:45	01/15/19 18:55	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/15/19 08:45	01/15/19 18:55	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/15/19 08:45	01/15/19 18:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		53 - 120				01/15/19 08:45	01/15/19 18:55	1

Lab Sample ID: MB 580-293078/1-A
Matrix: Water
Analysis Batch: 293266

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293078

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/15/19 08:45	01/17/19 14:40	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/15/19 08:45	01/17/19 14:40	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/15/19 08:45	01/17/19 14:40	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/15/19 08:45	01/17/19 14:40	1
Chrysene	ND		0.10	0.016	ug/L		01/15/19 08:45	01/17/19 14:40	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/15/19 08:45	01/17/19 14:40	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/15/19 08:45	01/17/19 14:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	68		53 - 120				01/15/19 08:45	01/17/19 14:40	1

Lab Sample ID: LCS 580-293078/2-A
Matrix: Water
Analysis Batch: 293147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293078

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzo[a]anthracene	4.00	4.44		ug/L		111	61 - 120		
Benzo[a]pyrene	4.00	3.94		ug/L		99	65 - 120		
Benzo[b]fluoranthene	4.00	3.73		ug/L		93	58 - 120		
Benzo[k]fluoranthene	4.00	3.91		ug/L		98	58 - 120		
Chrysene	4.00	3.47		ug/L		87	58 - 120		
Dibenz(a,h)anthracene	4.00	2.95		ug/L		74	60 - 125		
Indeno[1,2,3-cd]pyrene	4.00	3.56		ug/L		89	56 - 120		
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	91		53 - 120						

Lab Sample ID: LCSD 580-293078/3-A
Matrix: Water
Analysis Batch: 293147

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293078

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
Benzo[a]anthracene	4.00	4.09		ug/L		102	61 - 120	8	16
Benzo[a]pyrene	4.00	3.55		ug/L		89	65 - 120	11	17

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-293078/3-A
Matrix: Water
Analysis Batch: 293147

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293078

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[b]fluoranthene	4.00	3.05		ug/L		76	58 - 120	20	20
Benzo[k]fluoranthene	4.00	3.42		ug/L		86	58 - 120	13	20
Chrysene	4.00	3.89		ug/L		97	58 - 120	12	16
Dibenz(a,h)anthracene	4.00	3.30		ug/L		83	60 - 125	11	15
Indeno[1,2,3-cd]pyrene	4.00	2.90	*	ug/L		73	56 - 120	20	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	83		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293027/6
Matrix: Water
Analysis Batch: 293027

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/15/19 14:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		50 - 150		01/15/19 14:20	1
Trifluorotoluene (Surr)	117		50 - 150		01/15/19 14:20	1

Lab Sample ID: LCS 580-293027/7
Matrix: Water
Analysis Batch: 293027

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.922		mg/L		92	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	77		50 - 150
Trifluorotoluene (Surr)	113		50 - 150

Lab Sample ID: LCSD 580-293027/8
Matrix: Water
Analysis Batch: 293027

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.931		mg/L		93	79 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	74		50 - 150
Trifluorotoluene (Surr)	113		50 - 150

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-293077/1-B

Matrix: Water

Analysis Batch: 293133

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 293077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/15/19 08:41	01/15/19 16:22	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/15/19 08:41	01/15/19 16:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	96		50 - 150				01/15/19 08:41	01/15/19 16:22	1

Lab Sample ID: LCS 580-293077/2-B

Matrix: Water

Analysis Batch: 293133

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 293077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	2.00	1.98		mg/L		99	50 - 120		
Motor Oil (>C24-C36)	2.00	2.27		mg/L		114	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
<i>o</i> -Terphenyl	117		50 - 150						

Lab Sample ID: LCSD 580-293077/3-B

Matrix: Water

Analysis Batch: 293133

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 293077

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	2.04		mg/L		102	50 - 120	3	26
Motor Oil (>C24-C36)	2.00	2.22		mg/L		111	64 - 120	2	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	91		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83257-1

Date Collected: 01/11/19 10:00

Matrix: Water

Date Received: 01/11/19 14:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293001	01/14/19 15:57	W1T	TAL SEA
Total/NA	Prep	3510C			293078	01/15/19 08:45	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	293266	01/17/19 20:49	D1R	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293027	01/15/19 16:09	CJB	TAL SEA
Total/NA	Prep	3510C			293077	01/15/19 08:41	KO	TAL SEA
Total/NA	Cleanup	3630C			293114	01/15/19 12:02	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293133	01/15/19 17:28	W1T	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-83257-2

Date Collected: 01/11/19 10:00

Matrix: Water

Date Received: 01/11/19 14:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293001	01/14/19 16:22	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293027	01/15/19 15:42	CJB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83257-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83257-1	Outfall #002	Water	01/11/19 10:00	01/11/19 14:08
580-83257-2	Trip Blank	Water	01/11/19 10:00	01/11/19 14:08

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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83257-1

Login Number: 83257

List Number: 1

Creator: Hobbs, Kenneth F

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83399-1

Client Project/Site: Chevron Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
1/24/2019 2:04:11 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Job ID: 580-83399-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-83399-1

Receipt

Three samples were received on 1/17/2019 12:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The following samples were diluted due to the nature of the sample matrix: Outfall #002 (580-83399-1), Outfall #002 (580-83399-1[MS]), Outfall #002 (580-83399-1[MSD]) and Dup-1 (580-83399-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: An incorrect volume of spiking solution was inadvertently added to the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) associated with preparation batch 580-293431 and 580-293458 and analytical batch 580-293501. Percent recoveries are based on the amount spiked.

Method(s) NWTPH-Dx: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 580-293431 and 580-293458 and analytical batch 580-293501 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries were within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83399-1

Date Collected: 01/17/19 10:30

Matrix: Water

Date Received: 01/17/19 12:15

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/21/19 15:56	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123					01/21/19 15:56	1
Toluene-d8 (Surr)	103		79 - 122					01/21/19 15:56	1
4-Bromofluorobenzene (Surr)	103		78 - 119					01/21/19 15:56	1
Dibromofluoromethane (Surr)	98		70 - 120					01/21/19 15:56	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					01/21/19 15:56	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.15	0.042	ug/L		01/22/19 09:58	01/23/19 10:44	3
Benzo[a]pyrene	ND		0.30	0.033	ug/L		01/22/19 09:58	01/23/19 10:44	3
Benzo[b]fluoranthene	ND		0.15	0.033	ug/L		01/22/19 09:58	01/23/19 10:44	3
Benzo[k]fluoranthene	ND		0.15	0.036	ug/L		01/22/19 09:58	01/23/19 10:44	3
Chrysene	ND		0.30	0.049	ug/L		01/22/19 09:58	01/23/19 10:44	3
Dibenz(a,h)anthracene	ND		0.30	0.030	ug/L		01/22/19 09:58	01/23/19 10:44	3
Indeno[1,2,3-cd]pyrene	ND		0.15	0.042	ug/L		01/22/19 09:58	01/23/19 10:44	3
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		53 - 120				01/22/19 09:58	01/23/19 10:44	3

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/21/19 22:51	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		50 - 150					01/21/19 22:51	1
Trifluorotoluene (Surr)	112		50 - 150					01/21/19 22:51	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	F1 F2	0.12	0.068	mg/L		01/22/19 10:58	01/23/19 15:57	1
Motor Oil (>C24-C36)	ND	F1 F2	0.37	0.10	mg/L		01/22/19 10:58	01/23/19 15:57	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				01/22/19 10:58	01/23/19 15:57	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83399-5

Date Collected: 01/17/19 00:00

Matrix: Water

Date Received: 01/17/19 12:15

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/21/19 12:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Trifluorotoluene (Surr)</i>	98		74 - 123					01/21/19 12:35	1
<i>Toluene-d8 (Surr)</i>	103		79 - 122					01/21/19 12:35	1
<i>4-Bromofluorobenzene (Surr)</i>	103		78 - 119					01/21/19 12:35	1
<i>Dibromofluoromethane (Surr)</i>	99		70 - 120					01/21/19 12:35	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		70 - 120					01/21/19 12:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/21/19 17:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	76		50 - 150					01/21/19 17:51	1
<i>Trifluorotoluene (Surr)</i>	108		50 - 150					01/21/19 17:51	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Client Sample ID: Dup-1
Date Collected: 01/17/19 00:00
Date Received: 01/17/19 12:15

Lab Sample ID: 580-83399-6
Matrix: Water

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/21/19 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	97		74 - 123					01/21/19 16:21	1
Toluene-d8 (Surr)	102		79 - 122					01/21/19 16:21	1
4-Bromofluorobenzene (Surr)	105		78 - 119					01/21/19 16:21	1
Dibromofluoromethane (Surr)	101		70 - 120					01/21/19 16:21	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					01/21/19 16:21	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.15	0.043	ug/L		01/22/19 09:58	01/23/19 11:57	3
Benzo[a]pyrene	ND		0.31	0.034	ug/L		01/22/19 09:58	01/23/19 11:57	3
Benzo[b]fluoranthene	ND		0.15	0.034	ug/L		01/22/19 09:58	01/23/19 11:57	3
Benzo[k]fluoranthene	ND		0.15	0.037	ug/L		01/22/19 09:58	01/23/19 11:57	3
Chrysene	ND		0.31	0.049	ug/L		01/22/19 09:58	01/23/19 11:57	3
Dibenz(a,h)anthracene	ND		0.31	0.031	ug/L		01/22/19 09:58	01/23/19 11:57	3
Indeno[1,2,3-cd]pyrene	ND		0.15	0.043	ug/L		01/22/19 09:58	01/23/19 11:57	3
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		53 - 120				01/22/19 09:58	01/23/19 11:57	3

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/21/19 22:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		50 - 150					01/21/19 22:24	1
Trifluorotoluene (Surr)	117		50 - 150					01/21/19 22:24	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/22/19 10:58	01/23/19 17:03	1
Motor Oil (>C24-C36)	ND		0.35	0.095	mg/L		01/22/19 10:58	01/23/19 17:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150				01/22/19 10:58	01/23/19 17:03	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-293373/5
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/21/19 11:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123		01/21/19 11:08	1
Toluene-d8 (Surr)	102		79 - 122		01/21/19 11:08	1
4-Bromofluorobenzene (Surr)	105		78 - 119		01/21/19 11:08	1
Dibromofluoromethane (Surr)	99		70 - 120		01/21/19 11:08	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 120		01/21/19 11:08	1

Lab Sample ID: LCS 580-293373/6
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.3		ug/L		103	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	97		74 - 123
Toluene-d8 (Surr)	104		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	98		70 - 120
1,2-Dichloroethane-d4 (Surr)	94		70 - 120

Lab Sample ID: LCSD 580-293373/7
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.0		ug/L		100	37 - 151	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	96		74 - 123
Toluene-d8 (Surr)	103		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	99		70 - 120
1,2-Dichloroethane-d4 (Surr)	95		70 - 120

Lab Sample ID: 580-83399-1 MS
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		11.6	12.5		ug/L		107	37 - 151

Surrogate	MS %Recovery	MS Qualifier	Limits
Trifluorotoluene (Surr)	98		74 - 123
Toluene-d8 (Surr)	103		79 - 122

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-83399-1 MS
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	102		70 - 120
1,2-Dichloroethane-d4 (Surr)	98		70 - 120

Lab Sample ID: 580-83399-1 MSD
Matrix: Water
Analysis Batch: 293373

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		11.6	13.4		ug/L		115	37 - 151	7	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	96		74 - 123
Toluene-d8 (Surr)	103		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	98		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-293422/1-A
Matrix: Water
Analysis Batch: 293477

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293422

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/22/19 09:58	01/22/19 16:45	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/22/19 09:58	01/22/19 16:45	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/22/19 09:58	01/22/19 16:45	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/22/19 09:58	01/22/19 16:45	1
Chrysene	ND		0.10	0.016	ug/L		01/22/19 09:58	01/22/19 16:45	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/22/19 09:58	01/22/19 16:45	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/22/19 09:58	01/22/19 16:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	74		53 - 120	01/22/19 09:58	01/22/19 16:45	1

Lab Sample ID: LCS 580-293422/2-A
Matrix: Water
Analysis Batch: 293477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.52		ug/L		88	61 - 120
Benzo[a]pyrene	4.00	3.39		ug/L		85	65 - 120
Benzo[b]fluoranthene	4.00	3.54		ug/L		89	58 - 120
Benzo[k]fluoranthene	4.00	3.14		ug/L		79	58 - 120
Chrysene	4.00	2.86		ug/L		72	58 - 120
Dibenz(a,h)anthracene	4.00	3.68		ug/L		92	60 - 125

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-293422/2-A
Matrix: Water
Analysis Batch: 293477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Indeno[1,2,3-cd]pyrene	4.00	3.62		ug/L		90	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	71		53 - 120

Lab Sample ID: LCSD 580-293422/3-A
Matrix: Water
Analysis Batch: 293477

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.77		ug/L		94	61 - 120	7	16
Benzo[a]pyrene	4.00	3.73		ug/L		93	65 - 120	9	17
Benzo[b]fluoranthene	4.00	3.82		ug/L		96	58 - 120	8	20
Benzo[k]fluoranthene	4.00	3.36		ug/L		84	58 - 120	7	20
Chrysene	4.00	3.12		ug/L		78	58 - 120	9	16
Dibenz(a,h)anthracene	4.00	3.97		ug/L		99	60 - 125	8	15
Indeno[1,2,3-cd]pyrene	4.00	3.94		ug/L		99	56 - 120	9	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	75		53 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Lab Sample ID: 580-83399-1 MS
Matrix: Water
Analysis Batch: 293497

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene - DL	ND		4.10	3.41		ug/L		83	61 - 120
Benzo[a]pyrene - DL	ND		4.10	3.34		ug/L		82	65 - 120
Benzo[b]fluoranthene - DL	ND		4.10	3.17		ug/L		77	58 - 120
Benzo[k]fluoranthene - DL	ND		4.10	3.32		ug/L		81	58 - 120
Chrysene - DL	ND		4.10	3.29		ug/L		80	58 - 120
Dibenz(a,h)anthracene - DL	ND		4.10	3.36		ug/L		82	60 - 125
Indeno[1,2,3-cd]pyrene - DL	ND		4.10	3.46		ug/L		85	56 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14 - DL	64		53 - 120

Lab Sample ID: 580-83399-1 MSD
Matrix: Water
Analysis Batch: 293497

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene - DL	ND		4.23	3.22		ug/L		76	61 - 120	6	16
Benzo[a]pyrene - DL	ND		4.23	3.36		ug/L		79	65 - 120	0	17
Benzo[b]fluoranthene - DL	ND		4.23	3.20		ug/L		76	58 - 120	1	20

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL (Continued)

Lab Sample ID: 580-83399-1 MSD
Matrix: Water
Analysis Batch: 293497

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 293422

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Benzo[k]fluoranthene - DL	ND		4.23	3.23		ug/L		76	58 - 120	3	20
Chrysene - DL	ND		4.23	3.04		ug/L		72	58 - 120	8	16
Dibenz(a,h)anthracene - DL	ND		4.23	3.22		ug/L		76	60 - 125	4	15
Indeno[1,2,3-cd]pyrene - DL	ND		4.23	3.42		ug/L		81	56 - 120	1	15
Surrogate		MSD	MSD								
		%Recovery	Qualifier	Limits							
Terphenyl-d14 - DL		63		53 - 120							

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293406/6
Matrix: Water
Analysis Batch: 293406

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			01/21/19 16:30	1
Surrogate		MB							
		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)		70		50 - 150				01/21/19 16:30	1
Trifluorotoluene (Surr)		104		50 - 150				01/21/19 16:30	1

Lab Sample ID: LCS 580-293406/7
Matrix: Water
Analysis Batch: 293406

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
							Result
Gasoline	1.00	0.914		mg/L		91	79 - 120
Surrogate		LCS	LCS				
		%Recovery	Qualifier	Limits			
4-Bromofluorobenzene (Surr)		74		50 - 150			
Trifluorotoluene (Surr)		115		50 - 150			

Lab Sample ID: LCSD 580-293406/8
Matrix: Water
Analysis Batch: 293406

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	Limit
							Result		
Gasoline	1.00	0.936		mg/L		94	79 - 120	2	10
Surrogate		LCSD	LCSD						
		%Recovery	Qualifier	Limits					
4-Bromofluorobenzene (Surr)		75		50 - 150					
Trifluorotoluene (Surr)		115		50 - 150					

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-83399-1 MS
Matrix: Water
Analysis Batch: 293406

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	0.856		mg/L		86	79 - 120
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	74		50 - 150						
Trifluorotoluene (Surr)	114		50 - 150						

Lab Sample ID: 580-83399-1 MSD
Matrix: Water
Analysis Batch: 293406

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		1.00	0.939		mg/L		94	79 - 120	9	10
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	73		50 - 150								
Trifluorotoluene (Surr)	116		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-293431/1-B
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293431

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/22/19 10:58	01/23/19 10:52	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/22/19 10:58	01/23/19 10:52	1
Surrogate	%Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	69		50 - 150	01/22/19 10:58	01/23/19 10:52	1			

Lab Sample ID: LCS 580-293431/2-B
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293431

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	4.00	3.23		mg/L		81	50 - 120
Motor Oil (>C24-C36)	4.00	4.11		mg/L		103	64 - 120
Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits				
o-Terphenyl	92		50 - 150				

Lab Sample ID: LCSD 580-293431/3-B
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.57		mg/L		89	50 - 120	10	26

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-293431/3-B
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.41		mg/L		110	64 - 120	7	24
Surrogate		LCSD %Recovery	LCSD Qualifier						Limits
<i>o-Terphenyl</i>		95							50 - 150

Lab Sample ID: 580-83399-1 MS
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 293431

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	ND	F1 F2	2.02	0.757	F1	mg/L		37	50 - 120		
Motor Oil (>C24-C36)	ND	F1 F2	2.02	0.953	F1	mg/L		47	64 - 120		
Surrogate		MS %Recovery		MS Qualifier							Limits
<i>o-Terphenyl</i>		79									50 - 150

Lab Sample ID: 580-83399-1 MSD
Matrix: Water
Analysis Batch: 293501

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 293431

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	ND	F1 F2	2.07	1.67	F2	mg/L		81	50 - 120	75	26
Motor Oil (>C24-C36)	ND	F1 F2	2.07	2.09	F2	mg/L		101	64 - 120	75	24
Surrogate		MSD %Recovery		MSD Qualifier							Limits
<i>o-Terphenyl</i>		82									50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Client Sample ID: Outfall #002

Date Collected: 01/17/19 10:30

Date Received: 01/17/19 12:15

Lab Sample ID: 580-83399-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293373	01/21/19 15:56	W1T	TAL SEA
Total/NA	Prep	3510C	DL		293422	01/22/19 09:58	DCV	TAL SEA
Total/NA	Analysis	8270C SIM	DL	3	293497	01/23/19 10:44	DSO	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293406	01/21/19 22:51	CJB	TAL SEA
Total/NA	Prep	3510C			293431	01/22/19 10:58	JCM	TAL SEA
Total/NA	Cleanup	3630C			293458	01/22/19 14:29	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293501	01/23/19 15:57	W1T	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 01/17/19 00:00

Date Received: 01/17/19 12:15

Lab Sample ID: 580-83399-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293373	01/21/19 12:35	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293406	01/21/19 17:51	CJB	TAL SEA

Client Sample ID: Dup-1

Date Collected: 01/17/19 00:00

Date Received: 01/17/19 12:15

Lab Sample ID: 580-83399-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293373	01/21/19 16:21	W1T	TAL SEA
Total/NA	Prep	3510C	DL		293422	01/22/19 09:58	DCV	TAL SEA
Total/NA	Analysis	8270C SIM	DL	3	293497	01/23/19 11:57	DSO	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293406	01/21/19 22:24	CJB	TAL SEA
Total/NA	Prep	3510C			293431	01/22/19 10:58	JCM	TAL SEA
Total/NA	Cleanup	3630C			293458	01/22/19 14:29	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293501	01/23/19 17:03	W1T	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

TestAmerica Job ID: 580-83399-1

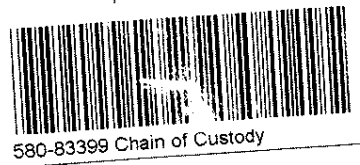
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83399-1	Outfall #002	Water	01/17/19 10:30	01/17/19 12:15
580-83399-5	Trip Blank	Water	01/17/19 00:00	01/17/19 12:15
580-83399-6	Dup-1	Water	01/17/19 00:00	01/17/19 12:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: **Arcadis** Client Contact: **Ophelic Enceile** Date: **1/17/19** Chain of Custody Number: **35149**
 Address: **1100 Olive Way, Suite 800** Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Jason Little** Lab Contact: **Elaine Walker** Page: **1** of **1**

Project Name and Location (State): **Edmonds Terminal** Billing Contact: _____
 Contract/Purchase Order/Quote No.: _____ Analysis (Attach list if more space is needed): _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Special Instructions/ Conditions of Receipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH			
Outfall #002	1/17/19	1030	X				2			8					Loc: 580 83399 pH = 7.47 *use standard SEC *Benzene & CPATHs w/ quantitative level less than 1 ug/L
outfall #002 MS	↓	1035	X				2			8					
outfall #002 MSD	↓	1035	X				2			8					
DUP-1	↓	—	X				2			8					
Trip Blank	→	—	X							6					



Therm. ID: **HZ** Cor: **2.6** Unc: **2.8**
 Cooler Desc: **Ly Binc**
 Packing: **Bubble** FedEx: _____
 Cust. Seal: Yes No UPS: _____
 Blue Ice: Dry, None Lab Cour: **Y**
 Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

1. Relinquished By Sign/Print	Date	Time	1. Received By Sign/Print	Date	Time
<i>[Signature]</i> Eric Louegar	1/17/19	1215	<i>[Signature]</i> FRANCISCO Luna, Jr	1/17/19	1215
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83399-1

Login Number: 83399

List Number: 1

Creator: Hobbs, Kenneth F

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83509-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
1/30/2019 4:40:25 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Job ID: 580-83509-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-83509-1

Receipt

Two samples were received on 1/24/2019 12:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83509-1

Date Collected: 01/24/19 11:00

Matrix: Water

Date Received: 01/24/19 12:00

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/25/19 14:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					01/25/19 14:15	1
Toluene-d8 (Surr)	112		79 - 122					01/25/19 14:15	1
4-Bromofluorobenzene (Surr)	103		78 - 119					01/25/19 14:15	1
Dibromofluoromethane (Surr)	96		70 - 120					01/25/19 14:15	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120					01/25/19 14:15	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/25/19 13:11	01/28/19 14:59	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/25/19 13:11	01/28/19 14:59	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/25/19 13:11	01/28/19 14:59	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/25/19 13:11	01/28/19 14:59	1
Chrysene	ND		0.10	0.016	ug/L		01/25/19 13:11	01/28/19 14:59	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/25/19 13:11	01/28/19 14:59	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/25/19 13:11	01/28/19 14:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	67		53 - 120				01/25/19 13:11	01/28/19 14:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/25/19 15:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		50 - 150					01/25/19 15:52	1
Trifluorotoluene (Surr)	118		50 - 150					01/25/19 15:52	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		01/25/19 09:01	01/28/19 16:06	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		01/25/19 09:01	01/28/19 16:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150				01/25/19 09:01	01/28/19 16:06	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83509-2

Date Collected: 01/24/19 00:00

Matrix: Water

Date Received: 01/24/19 12:00

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/25/19 13:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	88		74 - 123					01/25/19 13:50	1
Toluene-d8 (Surr)	110		79 - 122					01/25/19 13:50	1
4-Bromofluorobenzene (Surr)	99		78 - 119					01/25/19 13:50	1
Dibromofluoromethane (Surr)	96		70 - 120					01/25/19 13:50	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120					01/25/19 13:50	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/25/19 14:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		50 - 150					01/25/19 14:57	1
Trifluorotoluene (Surr)	109		50 - 150					01/25/19 14:57	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-293681/5
Matrix: Water
Analysis Batch: 293681

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			01/25/19 12:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	93		74 - 123		01/25/19 12:05	1
Toluene-d8 (Surr)	110		79 - 122		01/25/19 12:05	1
4-Bromofluorobenzene (Surr)	104		78 - 119		01/25/19 12:05	1
Dibromofluoromethane (Surr)	94		70 - 120		01/25/19 12:05	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 120		01/25/19 12:05	1

Lab Sample ID: LCS 580-293681/6
Matrix: Water
Analysis Batch: 293681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.58		ug/L		86	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	90		74 - 123
Toluene-d8 (Surr)	110		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	93		70 - 120
1,2-Dichloroethane-d4 (Surr)	101		70 - 120

Lab Sample ID: LCSD 580-293681/7
Matrix: Water
Analysis Batch: 293681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.28		ug/L		83	37 - 151	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	90		74 - 123
Toluene-d8 (Surr)	110		79 - 122
4-Bromofluorobenzene (Surr)	100		78 - 119
Dibromofluoromethane (Surr)	98		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-293685/1-A
Matrix: Water
Analysis Batch: 293753

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293685

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/25/19 13:11	01/28/19 12:07	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/25/19 13:11	01/28/19 12:07	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/25/19 13:11	01/28/19 12:07	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-293685/1-A
Matrix: Water
Analysis Batch: 293753

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293685

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/25/19 13:11	01/28/19 12:07	1
Chrysene	ND		0.10	0.016	ug/L		01/25/19 13:11	01/28/19 12:07	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/25/19 13:11	01/28/19 12:07	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/25/19 13:11	01/28/19 12:07	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	65		53 - 120				01/25/19 13:11	01/28/19 12:07	1

Lab Sample ID: LCS 580-293685/2-A
Matrix: Water
Analysis Batch: 293753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293685

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.21		ug/L		80	61 - 120
Benzo[a]pyrene	4.00	3.07		ug/L		77	65 - 120
Benzo[b]fluoranthene	4.00	3.33		ug/L		83	58 - 120
Benzo[k]fluoranthene	4.00	3.01		ug/L		75	58 - 120
Chrysene	4.00	2.83		ug/L		71	58 - 120
Dibenz(a,h)anthracene	4.00	3.51		ug/L		88	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.43		ug/L		86	56 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
Terphenyl-d14	64		53 - 120				

Lab Sample ID: LCSD 580-293685/3-A
Matrix: Water
Analysis Batch: 293753

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293685

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.12		ug/L		78	61 - 120	3	16
Benzo[a]pyrene	4.00	3.13		ug/L		78	65 - 120	2	17
Benzo[b]fluoranthene	4.00	3.20		ug/L		80	58 - 120	4	20
Benzo[k]fluoranthene	4.00	2.86		ug/L		72	58 - 120	5	20
Chrysene	4.00	2.72		ug/L		68	58 - 120	4	16
Dibenz(a,h)anthracene	4.00	3.36		ug/L		84	60 - 125	4	15
Indeno[1,2,3-cd]pyrene	4.00	3.24		ug/L		81	56 - 120	6	15
Surrogate	%Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	63		53 - 120						

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293691/6
Matrix: Water
Analysis Batch: 293691

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/25/19 13:36	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		50 - 150					01/25/19 13:36	1
Trifluorotoluene (Surr)	104		50 - 150					01/25/19 13:36	1

Lab Sample ID: LCS 580-293691/7
Matrix: Water
Analysis Batch: 293691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline	1.00	0.935		mg/L		94	79 - 120		
Surrogate	%Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	75		50 - 150						
Trifluorotoluene (Surr)	116		50 - 150						

Lab Sample ID: LCSD 580-293691/8
Matrix: Water
Analysis Batch: 293691

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.883		mg/L		88	79 - 120	6	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	71		50 - 150						
Trifluorotoluene (Surr)	112		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-293660/1-B
Matrix: Water
Analysis Batch: 293743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293660

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/25/19 09:01	01/28/19 13:33	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/25/19 09:01	01/28/19 13:33	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150				01/25/19 09:01	01/28/19 13:33	1

Lab Sample ID: LCS 580-293660/2-B
Matrix: Water
Analysis Batch: 293743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2.00	1.71		mg/L		85	50 - 120		

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-293660/2-B
Matrix: Water
Analysis Batch: 293743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	2.00	2.08		mg/L		104	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	87		50 - 150

Lab Sample ID: LCSD 580-293660/3-B
Matrix: Water
Analysis Batch: 293743

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293660

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		83	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	2.17		mg/L		108	64 - 120	4	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	86		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Client Sample ID: Outfall #002

Date Collected: 01/24/19 11:00

Date Received: 01/24/19 12:00

Lab Sample ID: 580-83509-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293681	01/25/19 14:15	W1T	TAL SEA
Total/NA	Prep	3510C			293685	01/25/19 13:11	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	293753	01/28/19 14:59	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293691	01/25/19 15:52	CJB	TAL SEA
Total/NA	Prep	3510C			293660	01/25/19 09:01	DCV	TAL SEA
Total/NA	Cleanup	3630C			293718	01/25/19 16:51	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	293743	01/28/19 16:06	TL1	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 01/24/19 00:00

Date Received: 01/24/19 12:00

Lab Sample ID: 580-83509-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	293681	01/25/19 13:50	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293691	01/25/19 14:57	CJB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	02-28-19
ANAB	DoD ELAP		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83509-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83509-1	Outfall #002	Water	01/24/19 11:00	01/24/19 12:00
580-83509-2	Trip Blank	Water	01/24/19 00:00	01/24/19 12:00

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Rush
 Short Hold

Chain of Custody Record

Client: Arcadis		Client Contact: Ophelic Encelle		Date: 1/24/19	Chain of Custody Number: 35113
Address: 1100 olive way, suite 800		Telephone Number (Area Code)/Fax Number:		Lab Number:	Page 1 of 1

City: Seattle	State: WA	Zip Code: 98101	Sampler: Jason Little	Lab Contact: Elaine Walker	Analysis (Attach list if more space is needed) Loc: 580 83509
Project Name and Location (State): Edmonds Terminal			Billing Contact:		
Contract/Purchase Order/Quote No.					

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						PH = 7.63	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		
Outfall #002	1/24/19	1100		X										
Trip Blank				X										

Benzene EPA 624
NWI PH - Gx
NWI PH - Dx w/ Sigc
CPAHS 8270 c sigc

* use standard
SGC

* Benzene & cPAHS
w/ quantitative
level less than
1 ug/L



Therm. ID: **A7** Cor: **1.0** Unc: **1.2**
Cooler Disc: **Sm Red**
Packing: **Bubble** FedEx:
Cust. Seal: Yes No UPS:
Blue Ice: Wet, Dry, None Lab Cour: **X**
Other:

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp:	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Disposal By Lab
---------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

QC Requirements (Specify)

1. Relinquished By Sign/Print Eric Krueger	Date 1/24/19	Time 1200	1. Received By Sign/Print Francisco Luna, Jr	Date 1/24/19	Time 1200
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83509-1

Login Number: 83509

List Number: 1

Creator: Hobbs, Kenneth F

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83602-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
2/5/2019 4:30:05 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Job ID: 580-83602-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-83602-1

Receipt

Two samples were received on 1/29/2019 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83602-1

Date Collected: 01/29/19 10:00

Matrix: Water

Date Received: 01/29/19 12:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/01/19 12:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					02/01/19 12:10	1
Toluene-d8 (Surr)	101		79 - 122					02/01/19 12:10	1
4-Bromofluorobenzene (Surr)	100		78 - 119					02/01/19 12:10	1
Dibromofluoromethane (Surr)	101		70 - 120					02/01/19 12:10	1
1,2-Dichloroethane-d4 (Surr)	108		70 - 120					02/01/19 12:10	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		01/31/19 11:58	02/04/19 16:21	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/31/19 11:58	02/04/19 16:21	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		01/31/19 11:58	02/04/19 16:21	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		01/31/19 11:58	02/04/19 16:21	1
Chrysene	ND		0.10	0.016	ug/L		01/31/19 11:58	02/04/19 16:21	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/31/19 11:58	02/04/19 16:21	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		01/31/19 11:58	02/04/19 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	58		53 - 120				01/31/19 11:58	02/04/19 16:21	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/30/19 19:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		50 - 150					01/30/19 19:17	1
Trifluorotoluene (Surr)	105		50 - 150					01/30/19 19:17	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/31/19 10:06	02/01/19 14:47	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		01/31/19 10:06	02/01/19 14:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150				01/31/19 10:06	02/01/19 14:47	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83602-2

Date Collected: 01/29/19 00:01

Matrix: Water

Date Received: 01/29/19 12:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/01/19 11:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					02/01/19 11:46	1
Toluene-d8 (Surr)	99		79 - 122					02/01/19 11:46	1
4-Bromofluorobenzene (Surr)	99		78 - 119					02/01/19 11:46	1
Dibromofluoromethane (Surr)	101		70 - 120					02/01/19 11:46	1
1,2-Dichloroethane-d4 (Surr)	110		70 - 120					02/01/19 11:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/30/19 17:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		50 - 150					01/30/19 17:55	1
Trifluorotoluene (Surr)	117		50 - 150					01/30/19 17:55	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-294052/5
Matrix: Water
Analysis Batch: 294052

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/01/19 10:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		02/01/19 10:06	1
Toluene-d8 (Surr)	103		79 - 122		02/01/19 10:06	1
4-Bromofluorobenzene (Surr)	101		78 - 119		02/01/19 10:06	1
Dibromofluoromethane (Surr)	105		70 - 120		02/01/19 10:06	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120		02/01/19 10:06	1

Lab Sample ID: LCS 580-294052/6
Matrix: Water
Analysis Batch: 294052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.6		ug/L		106	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	98		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	104		70 - 120
1,2-Dichloroethane-d4 (Surr)	108		70 - 120

Lab Sample ID: LCSD 580-294052/7
Matrix: Water
Analysis Batch: 294052

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	37 - 151	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	98		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	103		78 - 119
Dibromofluoromethane (Surr)	104		70 - 120
1,2-Dichloroethane-d4 (Surr)	110		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-294013/1-A
Matrix: Water
Analysis Batch: 294023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294013

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/31/19 11:58	01/31/19 15:17	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/31/19 11:58	01/31/19 15:17	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/31/19 11:58	01/31/19 15:17	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-294013/1-A
Matrix: Water
Analysis Batch: 294023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294013

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/31/19 11:58	01/31/19 15:17	1
Chrysene	ND		0.10	0.016	ug/L		01/31/19 11:58	01/31/19 15:17	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		01/31/19 11:58	01/31/19 15:17	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/31/19 11:58	01/31/19 15:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	75		53 - 120	01/31/19 11:58	01/31/19 15:17	1

Lab Sample ID: LCS 580-294013/2-A
Matrix: Water
Analysis Batch: 294023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294013

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.24		ug/L		81	61 - 120
Benzo[a]pyrene	4.00	3.34		ug/L		83	65 - 120
Benzo[b]fluoranthene	4.00	3.27		ug/L		82	58 - 120
Benzo[k]fluoranthene	4.00	3.21		ug/L		80	58 - 120
Chrysene	4.00	2.88		ug/L		72	58 - 120
Dibenz(a,h)anthracene	4.00	3.15		ug/L		79	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.27		ug/L		82	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	74		53 - 120

Lab Sample ID: LCSD 580-294013/3-A
Matrix: Water
Analysis Batch: 294023

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294013

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.45		ug/L		86	61 - 120	6	16
Benzo[a]pyrene	4.00	3.41		ug/L		85	65 - 120	2	17
Benzo[b]fluoranthene	4.00	3.57		ug/L		89	58 - 120	9	20
Benzo[k]fluoranthene	4.00	3.46		ug/L		87	58 - 120	8	20
Chrysene	4.00	3.03		ug/L		76	58 - 120	5	16
Dibenz(a,h)anthracene	4.00	3.42		ug/L		86	60 - 125	8	15
Indeno[1,2,3-cd]pyrene	4.00	3.63		ug/L		91	56 - 120	10	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	75		53 - 120

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-293951/6
Matrix: Water
Analysis Batch: 293951

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/30/19 16:06	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		50 - 150					01/30/19 16:06	1
Trifluorotoluene (Surr)	105		50 - 150					01/30/19 16:06	1

Lab Sample ID: LCS 580-293951/7
Matrix: Water
Analysis Batch: 293951

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.893		mg/L		89	79 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	84		50 - 150				
Trifluorotoluene (Surr)	117		50 - 150				

Lab Sample ID: LCSD 580-293951/8
Matrix: Water
Analysis Batch: 293951

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.890		mg/L		89	79 - 120	0	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	84		50 - 150						
Trifluorotoluene (Surr)	116		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-293994/1-B
Matrix: Water
Analysis Batch: 294059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/31/19 10:06	02/01/19 12:57	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/31/19 10:06	02/01/19 12:57	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150				01/31/19 10:06	02/01/19 12:57	1

Lab Sample ID: LCS 580-293994/2-B
Matrix: Water
Analysis Batch: 294059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	2.00		mg/L		100	50 - 120

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-293994/2-B
Matrix: Water
Analysis Batch: 294059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	2.00	2.21		mg/L		110	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	95		50 - 150

Lab Sample ID: LCSD 580-293994/3-B
Matrix: Water
Analysis Batch: 294059

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293994

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	2.01		mg/L		101	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.27		mg/L		113	64 - 120	3	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	92		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83602-1

Date Collected: 01/29/19 10:00

Matrix: Water

Date Received: 01/29/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	294052	02/01/19 12:10	TL1	TAL SEA
Total/NA	Prep	3510C			294013	01/31/19 11:58	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	294111	02/04/19 16:21	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293951	01/30/19 19:17	CJB	TAL SEA
Total/NA	Prep	3510C			293994	01/31/19 10:06	KO	TAL SEA
Total/NA	Cleanup	3630C			294021	01/31/19 14:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	294059	02/01/19 14:47	Z1R	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-83602-2

Date Collected: 01/29/19 00:01

Matrix: Water

Date Received: 01/29/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	294052	02/01/19 11:46	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	293951	01/30/19 17:55	CJB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	02-28-19
ANAB	DoD ELAP		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83602-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83602-1	Outfall #002	Water	01/29/19 10:00	01/29/19 12:30
580-83602-2	Trip Blank	Water	01/29/19 00:01	01/29/19 12:30

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Client Arcadis		Client Contact Ophelie Encelle		Date 1/29/19	Chain of Custody Number 35114
Address 1100 Olive way, Suite 800		Telephone Number (Area Code)/Fax Number		Lab Number 83602	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Eric Krueger	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)
Project Name and Location (State) Edmonds Terminal			Billing Contact		

Contract/Purchase Order/Quote No. _____

Special Instructions/ Conditions of Receipt

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Special Instructions/ Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other					
Outfall #002 Trip Blank	1/29/19	1000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			2			8								pH = 7.89
										6								* use standard SGC
																		* Benzene & CPATHS w/ quantitative level less than 1.0ug/L



Therm. ID: **AZ** Cor: **1.0** ° Unc: **1.2** °
 Cooler Desc: **Ice & Blue**
 Packing: **Bubble** FedEx: _____
 Cust. Seal: Yes ___ No UPS: _____
 Blue Ice, Wet, Dry, None Lab Cour:
 Other: _____

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

1. Relinquished By Sign/Print [Signature] Eric Krueger	Date 1/29/19	Time 1230	1. Received By Sign/Print [Signature] Francisco Luna, Jr.	Date 1/29/19	Time 1230
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83602-1

Login Number: 83602

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-83876-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
2/25/2019 2:02:56 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

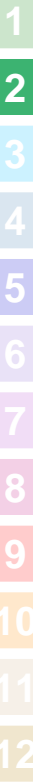


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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Job ID: 580-83876-1

Laboratory: TestAmerica Seattle

Narrative

**Job Narrative
580-83876-1**

Receipt

Two samples were received on 2/14/2019 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.5° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

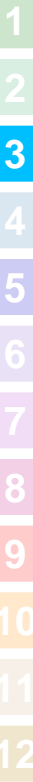
GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Outfall #002 (580-83876-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83876-1

Date Collected: 02/14/19 10:30

Matrix: Water

Date Received: 02/14/19 10:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/18/19 18:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					02/18/19 18:34	1
Toluene-d8 (Surr)	101		79 - 122					02/18/19 18:34	1
4-Bromofluorobenzene (Surr)	103		78 - 119					02/18/19 18:34	1
Dibromofluoromethane (Surr)	100		70 - 120					02/18/19 18:34	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					02/18/19 18:34	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/19/19 07:31	02/20/19 11:50	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/19/19 07:31	02/20/19 11:50	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/19/19 07:31	02/20/19 11:50	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/19/19 07:31	02/20/19 11:50	1
Chrysene	ND		0.10	0.016	ug/L		02/19/19 07:31	02/20/19 11:50	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		02/19/19 07:31	02/20/19 11:50	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/19/19 07:31	02/20/19 11:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		53 - 120				02/19/19 07:31	02/20/19 11:50	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/19/19 15:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150					02/19/19 15:03	1
Trifluorotoluene (Surr)	115		50 - 150					02/19/19 15:03	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		02/21/19 09:26	02/23/19 01:42	1
Motor Oil (>C24-C36)	0.14	J	0.37	0.10	mg/L		02/21/19 09:26	02/23/19 01:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150				02/21/19 09:26	02/23/19 01:42	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-83876-2

Date Collected: 02/14/19 00:00

Matrix: Water

Date Received: 02/14/19 10:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/18/19 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					02/18/19 18:09	1
Toluene-d8 (Surr)	102		79 - 122					02/18/19 18:09	1
4-Bromofluorobenzene (Surr)	102		78 - 119					02/18/19 18:09	1
Dibromofluoromethane (Surr)	99		70 - 120					02/18/19 18:09	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					02/18/19 18:09	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/19/19 14:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150					02/19/19 14:36	1
Trifluorotoluene (Surr)	113		50 - 150					02/19/19 14:36	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-294774/5
Matrix: Water
Analysis Batch: 294774

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/18/19 11:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		02/18/19 11:02	1
Toluene-d8 (Surr)	101		79 - 122		02/18/19 11:02	1
4-Bromofluorobenzene (Surr)	101		78 - 119		02/18/19 11:02	1
Dibromofluoromethane (Surr)	104		70 - 120		02/18/19 11:02	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 120		02/18/19 11:02	1

Lab Sample ID: LCS 580-294774/6
Matrix: Water
Analysis Batch: 294774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.7		ug/L		107	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	106		70 - 120
1,2-Dichloroethane-d4 (Surr)	112		70 - 120

Lab Sample ID: LCSD 580-294774/7
Matrix: Water
Analysis Batch: 294774

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.2		ug/L		102	37 - 151	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	101		78 - 119
Dibromofluoromethane (Surr)	102		70 - 120
1,2-Dichloroethane-d4 (Surr)	110		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-294781/1-A
Matrix: Water
Analysis Batch: 294791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294781

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/19/19 07:31	02/19/19 11:51	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/19/19 07:31	02/19/19 11:51	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/19/19 07:31	02/19/19 11:51	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-294781/1-A
Matrix: Water
Analysis Batch: 294791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294781

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/19/19 07:31	02/19/19 11:51	1
Chrysene	ND		0.10	0.016	ug/L		02/19/19 07:31	02/19/19 11:51	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		02/19/19 07:31	02/19/19 11:51	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/19/19 07:31	02/19/19 11:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		53 - 120	02/19/19 07:31	02/19/19 11:51	1

Lab Sample ID: LCS 580-294781/2-A
Matrix: Water
Analysis Batch: 294791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294781

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.46		ug/L		86	61 - 120
Benzo[a]pyrene	4.00	3.58		ug/L		90	65 - 120
Benzo[b]fluoranthene	4.00	3.43		ug/L		86	58 - 120
Benzo[k]fluoranthene	4.00	3.46		ug/L		87	58 - 120
Chrysene	4.00	3.15		ug/L		79	58 - 120
Dibenz(a,h)anthracene	4.00	3.49		ug/L		87	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.58		ug/L		89	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	75		53 - 120

Lab Sample ID: LCSD 580-294781/3-A
Matrix: Water
Analysis Batch: 294791

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294781

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.40		ug/L		85	61 - 120	2	16
Benzo[a]pyrene	4.00	3.62		ug/L		90	65 - 120	1	17
Benzo[b]fluoranthene	4.00	3.28		ug/L		82	58 - 120	4	20
Benzo[k]fluoranthene	4.00	3.54		ug/L		88	58 - 120	2	20
Chrysene	4.00	3.09		ug/L		77	58 - 120	2	16
Dibenz(a,h)anthracene	4.00	3.49		ug/L		87	60 - 125	0	15
Indeno[1,2,3-cd]pyrene	4.00	3.75		ug/L		94	56 - 120	5	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	72		53 - 120

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-294813/6
Matrix: Water
Analysis Batch: 294813

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/19/19 13:14	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		50 - 150					02/19/19 13:14	1
Trifluorotoluene (Surr)	106		50 - 150					02/19/19 13:14	1

Lab Sample ID: LCS 580-294813/7
Matrix: Water
Analysis Batch: 294813

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.901		mg/L		90	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	80		50 - 150				
Trifluorotoluene (Surr)	118		50 - 150				

Lab Sample ID: LCSD 580-294813/8
Matrix: Water
Analysis Batch: 294813

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.894		mg/L		89	79 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	75		50 - 150						
Trifluorotoluene (Surr)	116		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-294919/1-B
Matrix: Water
Analysis Batch: 295050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294919

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/21/19 09:26	02/22/19 17:45	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/21/19 09:26	02/22/19 17:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	106		50 - 150				02/21/19 09:26	02/22/19 17:45	1

Lab Sample ID: LCS 580-294919/2-B
Matrix: Water
Analysis Batch: 295050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.72		mg/L		86	50 - 120

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-294919/2-B
Matrix: Water
Analysis Batch: 295050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	2.00	2.05		mg/L		102	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	109		50 - 150

Lab Sample ID: LCSD 580-294919/3-B
Matrix: Water
Analysis Batch: 295050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294919

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.87		mg/L		93	50 - 120	8	26
Motor Oil (>C24-C36)	2.00	2.17		mg/L		108	64 - 120	6	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	91		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-83876-1

Date Collected: 02/14/19 10:30

Matrix: Water

Date Received: 02/14/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	294774	02/18/19 18:34	W1T	TAL SEA
Total/NA	Prep	3510C			294781	02/19/19 07:31	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	294872	02/20/19 11:50	KFS	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	294813	02/19/19 15:03	CJB	TAL SEA
Total/NA	Prep	3510C			294919	02/21/19 09:26	DCV	TAL SEA
Total/NA	Cleanup	3630C			295017	02/22/19 11:54	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	295050	02/23/19 01:42	T1W	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-83876-2

Date Collected: 02/14/19 00:00

Matrix: Water

Date Received: 02/14/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	294774	02/18/19 18:09	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	294813	02/19/19 14:36	CJB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	02-28-19
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-83876-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-83876-1	Outfall #002	Water	02/14/19 10:30	02/14/19 10:30
580-83876-2	Trip Blank	Water	02/14/19 00:00	02/14/19 10:30

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Client: **Arcadis** Client Contact: **Daphne Enccelle** Date: **2/14/19** Chain of Custody Number: **35115**
Address: **1100 Olive way, Suite 800** Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Eric Krueger** Lab Contact: **Elaine Walker** Page **1** of **1**

Project Name and Location (State): **Edmonds Terminal** Billing Contact: _____ Analysis (Attach list if more space is needed):
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis (Attach list if more space is needed)	Loc: 580 83876 Spc Cor	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH				
outfall #002	2/14/19	1030	X				2		8							pH = 7.91
Trip Blank			X						6							
																* USE Standard SGC
																* Benzene & cPAHs w/ quantitative level less than 1 ug/L

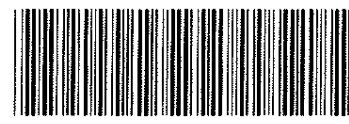
Therm. ID: A7 Cor: 0.5 ° Unc: 0.7 °
Cooler Desc: Sm Red
Packing: Bubble FedEx: _____
Cust. Seal: Yes No X UPS: _____
Blue Ice, Xet, Dry, None Lab Cour: X Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown
Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT** QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Eric Krueger	Date: 2/14/19 Time: 1030	1. Received By Sign/Print: Francisco Luna, Jr.	Date: 2/14/19 Time: 1030
2. Relinquished By Sign/Print: _____	Date: _____ Time: _____	2. Received By Sign/Print: _____	Date: _____ Time: _____
3. Relinquished By Sign/Print: _____	Date: _____ Time: _____	3. Received By Sign/Print: _____	Date: _____ Time: _____

Comments: _____



580-83876 Chain of Custody

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-83876-1

Login Number: 83876

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Walker, M Elaine

From: Krueger, Eric <Eric.Krueger@arcadis.com>
Sent: Monday, February 18, 2019 10:30 AM
To: Walker, M Elaine; Little, Jason; Encelle, Ophelie; Campbell, Peter; Brauchla, Ryan; Miles, Samuel
Subject: RE: TestAmerica sample confirmation files from 580-83876-1 Edmonds Terminal
Importance: High

-External Email-

Hey Elaine,

Please go ahead and run all of the samples taken on 2/14/19.

Thanks,
Eric

From: Walker, M Elaine <M.Elaine.Walker@testamericainc.com>
Sent: Friday, February 15, 2019 12:38 PM
To: Krueger, Eric <Eric.Krueger@arcadis.com>; Little, Jason <Jason.Little@arcadis.com>; Encelle, Ophelie <Ophelie.Encelle@arcadis.com>; Campbell, Peter <Peter.Campbell@arcadis.com>; Brauchla, Ryan <Ryan.Brauchla@arcadis.com>; Miles, Samuel <Samuel.Miles@arcadis.com>
Subject: RE: TestAmerica sample confirmation files from 580-83876-1 Edmonds Terminal

Thanks Eric

M. Elaine Walker

Phone: 253-248-4972

E-mail: M.Elaine.Walker@testamericainc.com

From: Krueger, Eric [<mailto:Eric.Krueger@arcadis.com>]
Sent: Friday, February 15, 2019 12:37 PM
To: Walker, M Elaine; Little, Jason; Encelle, Ophelie; Campbell, Peter; Brauchla, Ryan; Miles, Samuel
Subject: RE: TestAmerica sample confirmation files from 580-83876-1 Edmonds Terminal

-External Email-

Thanks, Elaine. I will get back to you asap about the holds.

From: Walker, Elaine <elaine.walker@testamericainc.com>
Sent: Friday, February 15, 2019 12:25 PM
To: Krueger, Eric <Eric.Krueger@arcadis.com>; Little, Jason <Jason.Little@arcadis.com>; Encelle, Ophelie <Ophelie.Encelle@arcadis.com>; Campbell, Peter <Peter.Campbell@arcadis.com>; Brauchla, Ryan

<Ryan.Brauchla@arcadis.com>; Miles, Samuel <Samuel.Miles@arcadis.com>

Subject: TestAmerica sample confirmation files from 580-83876-1 Edmonds Terminal

Hello,

Attached please find the sample confirmation files for job 580-83876-1; Edmonds Terminal.

Please note - these samples are on hold per email from Eric Krueger yesterday. Please let me know if they need to be run before the hold time expires.

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: [Project Feedback](#)

ELAINE M WALKER
Project Manager

TestAmerica Seattle
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 253.248.4972
www.testamericainc.com

Reference: [277758]
Attachments: 2

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84024-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
2/28/2019 1:28:02 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

Review your project
results through
TotalAccess

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Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Job ID: 580-84024-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-84024-1

Receipt

Two samples were received on 2/21/2019 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84024-1

Date Collected: 02/21/19 10:00

Matrix: Water

Date Received: 02/21/19 11:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/22/19 13:18	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					02/22/19 13:18	1
Toluene-d8 (Surr)	104		79 - 122					02/22/19 13:18	1
4-Bromofluorobenzene (Surr)	102		78 - 119					02/22/19 13:18	1
Dibromofluoromethane (Surr)	105		70 - 120					02/22/19 13:18	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 120					02/22/19 13:18	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		02/25/19 10:40	02/26/19 18:49	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/25/19 10:40	02/26/19 18:49	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		02/25/19 10:40	02/26/19 18:49	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		02/25/19 10:40	02/26/19 18:49	1
Chrysene	ND		0.10	0.016	ug/L		02/25/19 10:40	02/26/19 18:49	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		02/25/19 10:40	02/26/19 18:49	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		02/25/19 10:40	02/26/19 18:49	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		53 - 120				02/25/19 10:40	02/26/19 18:49	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/22/19 15:56	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		50 - 150					02/22/19 15:56	1
Trifluorotoluene (Surr)	114		50 - 150					02/22/19 15:56	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		02/25/19 08:36	02/25/19 19:57	1
Motor Oil (>C24-C36)	ND		0.36	0.097	mg/L		02/25/19 08:36	02/25/19 19:57	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150				02/25/19 08:36	02/25/19 19:57	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-84024-2

Date Collected: 02/21/19 10:00

Matrix: Water

Date Received: 02/21/19 11:30

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/22/19 12:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Trifluorotoluene (Surr)</i>	102		74 - 123					02/22/19 12:53	1
<i>Toluene-d8 (Surr)</i>	106		79 - 122					02/22/19 12:53	1
<i>4-Bromofluorobenzene (Surr)</i>	103		78 - 119					02/22/19 12:53	1
<i>Dibromofluoromethane (Surr)</i>	105		70 - 120					02/22/19 12:53	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	106		70 - 120					02/22/19 12:53	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/22/19 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	74		50 - 150					02/22/19 15:29	1
<i>Trifluorotoluene (Surr)</i>	119		50 - 150					02/22/19 15:29	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-295021/5
Matrix: Water
Analysis Batch: 295021

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			02/22/19 10:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123		02/22/19 10:31	1
Toluene-d8 (Surr)	104		79 - 122		02/22/19 10:31	1
4-Bromofluorobenzene (Surr)	104		78 - 119		02/22/19 10:31	1
Dibromofluoromethane (Surr)	103		70 - 120		02/22/19 10:31	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120		02/22/19 10:31	1

Lab Sample ID: LCS 580-295021/6
Matrix: Water
Analysis Batch: 295021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	102		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	103		70 - 120

Lab Sample ID: LCSD 580-295021/7
Matrix: Water
Analysis Batch: 295021

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.2		ug/L		102	37 - 151	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-295111/1-A
Matrix: Water
Analysis Batch: 295194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/25/19 10:40	02/26/19 12:21	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/25/19 10:40	02/26/19 12:21	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/25/19 10:40	02/26/19 12:21	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-295111/1-A
Matrix: Water
Analysis Batch: 295194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/25/19 10:40	02/26/19 12:21	1
Chrysene	ND		0.10	0.016	ug/L		02/25/19 10:40	02/26/19 12:21	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		02/25/19 10:40	02/26/19 12:21	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/25/19 10:40	02/26/19 12:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	76		53 - 120				02/25/19 10:40	02/26/19 12:21	1

Lab Sample ID: LCS 580-295111/2-A
Matrix: Water
Analysis Batch: 295194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.33		ug/L		83	61 - 120
Benzo[a]pyrene	4.00	3.13		ug/L		78	65 - 120
Benzo[b]fluoranthene	4.00	3.12		ug/L		78	58 - 120
Benzo[k]fluoranthene	4.00	2.95		ug/L		74	58 - 120
Chrysene	4.00	2.70		ug/L		67	58 - 120
Dibenz(a,h)anthracene	4.00	3.10		ug/L		77	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.20		ug/L		80	56 - 120
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	75		53 - 120				

Lab Sample ID: LCSD 580-295111/3-A
Matrix: Water
Analysis Batch: 295194

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295111

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.46		ug/L		87	61 - 120	4	16
Benzo[a]pyrene	4.00	3.21		ug/L		80	65 - 120	2	17
Benzo[b]fluoranthene	4.00	3.28		ug/L		82	58 - 120	5	20
Benzo[k]fluoranthene	4.00	3.09		ug/L		77	58 - 120	5	20
Chrysene	4.00	2.80		ug/L		70	58 - 120	4	16
Dibenz(a,h)anthracene	4.00	3.28		ug/L		82	60 - 125	6	15
Indeno[1,2,3-cd]pyrene	4.00	3.39		ug/L		85	56 - 120	6	15
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	74		53 - 120						

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-295054/6

Matrix: Water

Analysis Batch: 295054

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			02/22/19 14:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		50 - 150		02/22/19 14:07	1
Trifluorotoluene (Surr)	102		50 - 150		02/22/19 14:07	1

Lab Sample ID: LCS 580-295054/7

Matrix: Water

Analysis Batch: 295054

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.938		mg/L		94	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	76		50 - 150
Trifluorotoluene (Surr)	115		50 - 150

Lab Sample ID: LCSD 580-295054/8

Matrix: Water

Analysis Batch: 295054

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.952		mg/L		95	79 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	77		50 - 150
Trifluorotoluene (Surr)	115		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-295079/1-B

Matrix: Water

Analysis Batch: 295142

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295079

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/25/19 08:36	02/25/19 17:46	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/25/19 08:36	02/25/19 17:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150	02/25/19 08:36	02/25/19 17:46	1

Lab Sample ID: LCS 580-295079/2-B

Matrix: Water

Analysis Batch: 295142

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 295079

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.71		mg/L		86	50 - 120

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-295079/2-B
Matrix: Water
Analysis Batch: 295142

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295079

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	2.00	1.94		mg/L		97	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	78		50 - 150

Lab Sample ID: LCSD 580-295079/3-B
Matrix: Water
Analysis Batch: 295142

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295079

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.68		mg/L		84	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	1.91		mg/L		96	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	100		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84024-1

Date Collected: 02/21/19 10:00

Matrix: Water

Date Received: 02/21/19 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	295021	02/22/19 13:18	TL1	TAL SEA
Total/NA	Prep	3510C			295111	02/25/19 10:40	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	295194	02/26/19 18:49	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	295054	02/22/19 15:56	W1T	TAL SEA
Total/NA	Prep	3510C			295079	02/25/19 08:36	DCV	TAL SEA
Total/NA	Cleanup	3630C			295138	02/25/19 15:34	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	295142	02/25/19 19:57	JCM	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-84024-2

Date Collected: 02/21/19 10:00

Matrix: Water

Date Received: 02/21/19 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	295021	02/22/19 12:53	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	295054	02/22/19 15:29	W1T	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84024-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84024-1	Outfall #002	Water	02/21/19 10:00	02/21/19 11:30
580-84024-2	Trip Blank	Water	02/21/19 10:00	02/21/19 11:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

TestAmerica Seattle
 5755 8th Street E.
 Tacoma, WA 98424
 Tel. 253-922-2310
 Fax 253-922-5047
 www.testamericainc.com

Rush

Short Hold

Chain of Custody Record

Client Arcadis		Client Contact Ophelie Enccelle		Date 2/21/19		Chain of Custody Number 35244	
Address 1100 olive way, Suite 800		Telephone Number (Area Code)/Fax Number		Lab Number		Page 1 of 1	

City Seattle	State WA	Zip Code 98101	Sampler Eric Krueger		Lab Contact Elaine Walker		Analysis (Attach list if more space is needed)	Loc: 580 84024
Project Name and Location (State) Edmonds Terminal			Billing Contact					

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Unpres.	Containers & Preservatives					Benzene EPA 6024	MUTPH-C14	MUTPH-DL w/SGC	CPAHs 870C SUM	ons/ ceipt	
			Air	Aqueous	Sed.	Soil		H2SO4	HNO3	HCl	NaOH	ZnAc2						MeOH
Outfall #002	2/21/19	1000		<input checked="" type="checkbox"/>			2											PH= 7.76
Trip Blank				<input checked="" type="checkbox"/>														* use standard SGC



580-84024 Chain of Custody

Therm. ID: A2 Cor: 3.8 ° Unc: 4.0 °
 Cooler Desc: Med Blue
 Packing: Bubble FedEx: _____
 Cust. Seal: Yes No UPS: _____
 Blue Ice, Yes Dry, None Lab Cour: X
 Other: _____

* Benzene & CPAH
 w/ quantitative
 level less than
 1 ug/L

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)	
Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other STAT		QC Requirements (Specify)		
1. Relinquished By Sign/Print [Signature] Eric Krueger	Date 2/21/19	Time 1130	1. Received By Sign/Print [Signature] Francisco Luna, Jr.	Date 2/21/19
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-84024-1

Login Number: 84024

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84212-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
3/11/2019 3:53:25 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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Have a Question?



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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Job ID: 580-84212-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-84212-1

Comments

No additional comments.

Receipt

The samples were received on 2/27/2019 11:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

GC/MS VOA

Method(s) 624: The surrogate recovery for the blank associated with analytical batch 580-295865 was outside the upper control limits.

Method(s) NWTPH-Gx: CCC %C criteria were exceeded for 4-bromofluorobenzene (surr) and/or Trifluorotoluene (surr). Target analyte recoveries and surrogates were within acceptance limits, therefore the data have been reported. (CCV 580-295844/23) and (CCV 580-295844/5)

Method(s) NWTPH-Gx: CCC %D criteria for the CCVs associated with this sample was exceeded for Gasoline and/or 4-bromofluorobenzene (surr). The associated samples are reported as secondary because after reanalysis there was no more volume remaining for further analysis. (CCV 580-295762/16) and (CCV 580-295762/26)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The method blank for preparation batch 580-295552 and analytical batch 580-295655 contained Motor Oil (>C24-C36) above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84212-1

Date Collected: 02/26/19 15:15

Matrix: Water

Date Received: 02/27/19 11:15

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/08/19 14:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					03/08/19 14:43	1
Toluene-d8 (Surr)	99		79 - 122					03/08/19 14:43	1
4-Bromofluorobenzene (Surr)	95		78 - 119					03/08/19 14:43	1
Dibromofluoromethane (Surr)	106		70 - 120					03/08/19 14:43	1
1,2-Dichloroethane-d4 (Surr)	120		70 - 120					03/08/19 14:43	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.014	ug/L		03/04/19 10:37	03/05/19 17:42	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/04/19 10:37	03/05/19 17:42	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		03/04/19 10:37	03/05/19 17:42	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		03/04/19 10:37	03/05/19 17:42	1
Chrysene	ND		0.10	0.017	ug/L		03/04/19 10:37	03/05/19 17:42	1
Dibenz[a,h]anthracene	ND		0.10	0.010	ug/L		03/04/19 10:37	03/05/19 17:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.014	ug/L		03/04/19 10:37	03/05/19 17:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		53 - 120				03/04/19 10:37	03/05/19 17:42	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/08/19 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		50 - 150					03/08/19 19:36	1
Trifluorotoluene (Surr)	102		50 - 150					03/08/19 19:36	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		03/05/19 08:47	03/06/19 13:02	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		03/05/19 08:47	03/06/19 13:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	91		50 - 150				03/05/19 08:47	03/06/19 13:02	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-84212-2

Date Collected: 02/26/19 00:00

Matrix: Water

Date Received: 02/27/19 11:15

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/08/19 14:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					03/08/19 14:18	1
Toluene-d8 (Surr)	98		79 - 122					03/08/19 14:18	1
4-Bromofluorobenzene (Surr)	96		78 - 119					03/08/19 14:18	1
Dibromofluoromethane (Surr)	107		70 - 120					03/08/19 14:18	1
1,2-Dichloroethane-d4 (Surr)	119		70 - 120					03/08/19 14:18	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/08/19 15:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		50 - 150					03/08/19 15:03	1
Trifluorotoluene (Surr)	105		50 - 150					03/08/19 15:03	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-295865/4

Matrix: Water

Analysis Batch: 295865

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/08/19 13:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		03/08/19 13:04	1
Toluene-d8 (Surr)	96		79 - 122		03/08/19 13:04	1
4-Bromofluorobenzene (Surr)	95		78 - 119		03/08/19 13:04	1
Dibromofluoromethane (Surr)	106		70 - 120		03/08/19 13:04	1
1,2-Dichloroethane-d4 (Surr)	121	X	70 - 120		03/08/19 13:04	1

Lab Sample ID: LCS 580-295865/5

Matrix: Water

Analysis Batch: 295865

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.75		ug/L		98	37 - 151

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	96		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	107		70 - 120
1,2-Dichloroethane-d4 (Surr)	117		70 - 120

Lab Sample ID: LCSD 580-295865/6

Matrix: Water

Analysis Batch: 295865

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.2		ug/L		102	37 - 151	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	102		74 - 123
Toluene-d8 (Surr)	96		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	116		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-295473/1-A

Matrix: Water

Analysis Batch: 295598

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295473

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/04/19 10:37	03/05/19 16:28	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/04/19 10:37	03/05/19 16:28	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/04/19 10:37	03/05/19 16:28	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-295473/1-A

Matrix: Water

Analysis Batch: 295598

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295473

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/04/19 10:37	03/05/19 16:28	1
Chrysene	ND		0.10	0.016	ug/L		03/04/19 10:37	03/05/19 16:28	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/04/19 10:37	03/05/19 16:28	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/04/19 10:37	03/05/19 16:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	75		53 - 120	03/04/19 10:37	03/05/19 16:28	1

Lab Sample ID: LCS 580-295473/2-A

Matrix: Water

Analysis Batch: 295598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 295473

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.94		ug/L		99	61 - 120
Benzo[a]pyrene	4.00	4.38		ug/L		110	65 - 120
Benzo[b]fluoranthene	4.00	4.26		ug/L		107	58 - 120
Benzo[k]fluoranthene	4.00	3.93		ug/L		98	58 - 120
Chrysene	4.00	3.55		ug/L		89	58 - 120
Dibenz(a,h)anthracene	4.00	4.54		ug/L		113	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	4.74		ug/L		118	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	77		53 - 120

Lab Sample ID: LCSD 580-295473/3-A

Matrix: Water

Analysis Batch: 295598

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 295473

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.71		ug/L		93	61 - 120	6	16
Benzo[a]pyrene	4.00	3.88		ug/L		97	65 - 120	12	17
Benzo[b]fluoranthene	4.00	3.80		ug/L		95	58 - 120	12	20
Benzo[k]fluoranthene	4.00	3.58		ug/L		89	58 - 120	9	20
Chrysene	4.00	3.50		ug/L		88	58 - 120	1	16
Dibenz(a,h)anthracene	4.00	4.15		ug/L		104	60 - 125	9	15
Indeno[1,2,3-cd]pyrene	4.00	4.38		ug/L		109	56 - 120	8	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	76		53 - 120

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-295844/6

Matrix: Water

Analysis Batch: 295844

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/08/19 12:48	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		50 - 150					03/08/19 12:48	1
Trifluorotoluene (Surr)	106		50 - 150					03/08/19 12:48	1

Lab Sample ID: LCS 580-295844/7

Matrix: Water

Analysis Batch: 295844

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.911		mg/L		91	79 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	79		50 - 150				
Trifluorotoluene (Surr)	119		50 - 150				

Lab Sample ID: LCSD 580-295844/8

Matrix: Water

Analysis Batch: 295844

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.922		mg/L		92	79 - 120	1	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	77		50 - 150						
Trifluorotoluene (Surr)	119		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-295552/1-A

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/05/19 08:47	03/06/19 13:23	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/05/19 08:47	03/06/19 13:23	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	92		50 - 150				03/05/19 08:47	03/06/19 13:23	1

Lab Sample ID: MB 580-295552/1-B

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/05/19 08:47	03/06/19 11:56	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

(Continued)

Lab Sample ID: MB 580-295552/1-B

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 295552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	0.0980	J	0.35	0.096	mg/L		03/05/19 08:47	03/06/19 11:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	92		50 - 150	03/05/19 08:47	03/06/19 11:56	1

Lab Sample ID: LCS 580-295552/2-A

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 295552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	2.03		mg/L		102	50 - 120
Motor Oil (>C24-C36)	2.00	2.23		mg/L		112	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	78		50 - 150

Lab Sample ID: LCS 580-295552/2-B

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 295552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	2.11		mg/L		106	50 - 120
Motor Oil (>C24-C36)	2.00	2.37		mg/L		119	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	100		50 - 150

Lab Sample ID: LCSD 580-295552/3-A

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 295552

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	2.01		mg/L		100	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.27		mg/L		114	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	102		50 - 150

Lab Sample ID: LCSD 580-295552/3-B

Matrix: Water

Analysis Batch: 295655

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 295552

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	2.08		mg/L		104	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	2.28		mg/L		114	64 - 120	4	24

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-295552/3-B
Matrix: Water
Analysis Batch: 295655

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295552

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	110		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84212-1

Date Collected: 02/26/19 15:15

Matrix: Water

Date Received: 02/27/19 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	295865	03/08/19 14:43	W1T	TAL SEA
Total/NA	Prep	3510C			295473	03/04/19 10:37	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	295598	03/05/19 17:42	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	295844	03/08/19 19:36	Z1R	TAL SEA
Total/NA	Prep	3510C			295552	03/05/19 08:47	DCV	TAL SEA
Total/NA	Cleanup	3630C			295603	03/05/19 14:51	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	295655	03/06/19 13:02	W1T	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-84212-2

Date Collected: 02/26/19 00:00

Matrix: Water

Date Received: 02/27/19 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	295865	03/08/19 14:18	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	295844	03/08/19 15:03	Z1R	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84212-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84212-1	Outfall #002	Water	02/26/19 15:15	02/27/19 11:15
580-84212-2	Trip Blank	Water	02/26/19 00:00	02/27/19 11:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush
 Short Hold

Chain of Custody Record

Client: Acendis Client Contact: Raphaelle Enelle Date: 2/26/19 Chain of Custody Number: 35245
 Address: 1100 Olive Way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____ Page: 1 of 1

City: Seattle State: WA Zip Code: 98109 Sampler: Juan Lopez Lab Contact: Elaine Walker Analysis (Attach list if more space is needed):
 Project Name and Location (State): Edmonds Terminal Billing Contact: Edmonds WA
 Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix										Containers & Preservatives	Sp Co			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH					
<u>Outfall #1002</u>	<u>2/26/19</u>	<u>1515</u>		<u>X</u>						<u>2</u>			<u>8</u>			<u>Bottle EM604</u>	<u>11-7.27</u>
<u>Trip Blank</u>	<u>—</u>	<u>—</u>		<u>X</u>									<u>6</u>			<u>WITH-6X</u> <u>WITH-6X</u> <u>CPMS 8270</u>	
																	<u>x-use standard</u>
																	<u>Silica gel cleanup</u>
																	<u>x Benzene + C1A1r</u>
																	<u>w/quantitative level</u>
																	<u>1-JS then lug/L</u>



Therm. ID: A2 Cor: 4.0 ° Unc: 4.2 °
 Cooler Dsc: Med Blue
 Packing: Bubble FedEx: _____
 Cust. Seal: Yes ___ No X UPS: _____
 Blue Ice: Wet, Dry, None Lab Cour: X
 Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT
 QC Requirements (Specify): _____
 1. Relinquished By: Juan Lopez Date: 2/27/19 Time: 1115 1. Received By: Francisco Luna, Jr. Date: 2/27/19 Time: 1115
 2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____
 3. Relinquished By: _____ Date: _____ Time: _____ 3. Received By: _____ Date: _____ Time: _____

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-84212-1

Login Number: 84212

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84474-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
3/19/2019 5:47:39 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Job ID: 580-84474-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-84474-1

Comments

No additional comments.

Receipt

The samples were received on 3/8/2019 1:22 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

Receipt

The samples were received on 3/8/2019 1:22 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

GC/MS VOA

Method(s) NWTPH-Gx: The continuing calibration verification (CCV) standard associated with batch 580-296528 recovered outside %Drift acceptance criteria for 4-Bromofluorobenzene surrogate. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. (CCV 580-296528/14), (CCV 580-296528/25), (CCV 580-296528/29) and (CCV 580-296528/3)

Method(s) NWTPH-Gx: The following volatile sample was analyzed with significant headspace in the sample container(s): Trip Blank (580-84474-2). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84474-1

Date Collected: 03/06/19 10:45

Matrix: Water

Date Received: 03/08/19 13:22

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/13/19 14:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					03/13/19 14:18	1
Toluene-d8 (Surr)	107		79 - 122					03/13/19 14:18	1
4-Bromofluorobenzene (Surr)	102		78 - 119					03/13/19 14:18	1
Dibromofluoromethane (Surr)	101		70 - 120					03/13/19 14:18	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120					03/13/19 14:18	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		03/13/19 09:12	03/13/19 18:48	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		03/13/19 09:12	03/13/19 18:48	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		03/13/19 09:12	03/13/19 18:48	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		03/13/19 09:12	03/13/19 18:48	1
Chrysene	ND		0.11	0.017	ug/L		03/13/19 09:12	03/13/19 18:48	1
Dibenz[a,h]anthracene	ND		0.11	0.011	ug/L		03/13/19 09:12	03/13/19 18:48	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		03/13/19 09:12	03/13/19 18:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	76		53 - 120				03/13/19 09:12	03/13/19 18:48	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/18/19 23:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	76		50 - 150					03/18/19 23:24	1
Trifluorotoluene (Surr)	107		50 - 150					03/18/19 23:24	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		03/13/19 09:07	03/14/19 21:11	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		03/13/19 09:07	03/14/19 21:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	116		50 - 150				03/13/19 09:07	03/14/19 21:11	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-84474-2

Date Collected: 03/06/19 00:01

Matrix: Water

Date Received: 03/08/19 13:22

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/13/19 14:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123					03/13/19 14:43	1
Toluene-d8 (Surr)	102		79 - 122					03/13/19 14:43	1
4-Bromofluorobenzene (Surr)	103		78 - 119					03/13/19 14:43	1
Dibromofluoromethane (Surr)	100		70 - 120					03/13/19 14:43	1
1,2-Dichloroethane-d4 (Surr)	114		70 - 120					03/13/19 14:43	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/18/19 15:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		50 - 150					03/18/19 15:43	1
Trifluorotoluene (Surr)	112		50 - 150					03/18/19 15:43	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-296193/4

Matrix: Water

Analysis Batch: 296193

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/13/19 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	97		74 - 123		03/13/19 12:11	1
Toluene-d8 (Surr)	104		79 - 122		03/13/19 12:11	1
4-Bromofluorobenzene (Surr)	103		78 - 119		03/13/19 12:11	1
Dibromofluoromethane (Surr)	95		70 - 120		03/13/19 12:11	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 120		03/13/19 12:11	1

Lab Sample ID: LCS 580-296193/5

Matrix: Water

Analysis Batch: 296193

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.3		ug/L		113	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	98		79 - 122
4-Bromofluorobenzene (Surr)	100		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	110		70 - 120

Lab Sample ID: LCSD 580-296193/6

Matrix: Water

Analysis Batch: 296193

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.5		ug/L		105	65 - 135	7	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	97		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	110		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-296148/1-A

Matrix: Water

Analysis Batch: 296167

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 296148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/13/19 09:12	03/13/19 17:30	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/13/19 09:12	03/13/19 17:30	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/13/19 09:12	03/13/19 17:30	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-296148/1-A

Matrix: Water

Analysis Batch: 296167

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 296148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/13/19 09:12	03/13/19 17:30	1
Chrysene	ND		0.10	0.016	ug/L		03/13/19 09:12	03/13/19 17:30	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/13/19 09:12	03/13/19 17:30	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/13/19 09:12	03/13/19 17:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	83		53 - 120	03/13/19 09:12	03/13/19 17:30	1

Lab Sample ID: LCS 580-296148/2-A

Matrix: Water

Analysis Batch: 296167

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 296148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.45		ug/L		86	61 - 120
Benzo[a]pyrene	4.00	3.28		ug/L		82	65 - 120
Benzo[b]fluoranthene	4.00	2.88		ug/L		72	58 - 120
Benzo[k]fluoranthene	4.00	3.38		ug/L		85	58 - 120
Chrysene	4.00	2.85		ug/L		71	58 - 120
Dibenz(a,h)anthracene	4.00	3.13		ug/L		78	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.89		ug/L		97	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	77		53 - 120

Lab Sample ID: LCSD 580-296148/3-A

Matrix: Water

Analysis Batch: 296167

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 296148

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.58		ug/L		89	61 - 120	4	16
Benzo[a]pyrene	4.00	3.51		ug/L		88	65 - 120	7	17
Benzo[b]fluoranthene	4.00	3.46		ug/L		87	58 - 120	18	20
Benzo[k]fluoranthene	4.00	3.15		ug/L		79	58 - 120	7	20
Chrysene	4.00	2.97		ug/L		74	58 - 120	4	16
Dibenz(a,h)anthracene	4.00	3.20		ug/L		80	60 - 125	2	15
Indeno[1,2,3-cd]pyrene	4.00	4.00		ug/L		100	56 - 120	3	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	80		53 - 120

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-296528/4

Matrix: Water

Analysis Batch: 296528

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/18/19 12:34	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		50 - 150					03/18/19 12:34	1
Trifluorotoluene (Surr)	118		50 - 150					03/18/19 12:34	1

Lab Sample ID: LCS 580-296528/5

Matrix: Water

Analysis Batch: 296528

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.863		mg/L		86	79 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	75		50 - 150				
Trifluorotoluene (Surr)	86		50 - 150				

Lab Sample ID: LCSD 580-296528/6

Matrix: Water

Analysis Batch: 296528

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.854		mg/L		85	79 - 120	1	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	76		50 - 150						
Trifluorotoluene (Surr)	83		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-296146/1-A

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 296146

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/13/19 09:07	03/14/19 20:10	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/13/19 09:07	03/14/19 20:10	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	95		50 - 150				03/13/19 09:07	03/14/19 20:10	1

Lab Sample ID: MB 580-296146/1-B

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 296146

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/13/19 09:07	03/14/19 19:10	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

(Continued)

Lab Sample ID: MB 580-296146/1-B

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 296146

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/13/19 09:07	03/14/19 19:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	97		50 - 150	03/13/19 09:07	03/14/19 19:10	1

Lab Sample ID: LCS 580-296146/2-A

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 296146

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.54		mg/L		77	50 - 120
Motor Oil (>C24-C36)	2.00	1.70		mg/L		85	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	81		50 - 150

Lab Sample ID: LCS 580-296146/2-B

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 296146

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.63		mg/L		81	50 - 120
Motor Oil (>C24-C36)	2.00	1.82		mg/L		91	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	83		50 - 150

Lab Sample ID: LCSD 580-296146/3-A

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 296146

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.65		mg/L		83	50 - 120	7	26
Motor Oil (>C24-C36)	2.00	1.80		mg/L		90	64 - 120	6	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	86		50 - 150

Lab Sample ID: LCSD 580-296146/3-B

Matrix: Water

Analysis Batch: 296271

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 296146

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.70		mg/L		85	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	1.90		mg/L		95	64 - 120	4	24

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-296146/3-B
Matrix: Water
Analysis Batch: 296271

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296146

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	88		50 - 150

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Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84474-1

Date Collected: 03/06/19 10:45

Matrix: Water

Date Received: 03/08/19 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	296193	03/13/19 14:18	CJ	TAL SEA
Total/NA	Prep	3510C			296148	03/13/19 09:12	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	296167	03/13/19 18:48	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	296528	03/18/19 23:24	T1W	TAL SEA
Total/NA	Prep	3510C			296146	03/13/19 09:07	DCV	TAL SEA
Total/NA	Cleanup	3630C			296244	03/13/19 16:39	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	296271	03/14/19 21:11	TL1	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-84474-2

Date Collected: 03/06/19 00:01

Matrix: Water

Date Received: 03/08/19 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	296193	03/13/19 14:43	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	296528	03/18/19 15:43	T1W	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84474-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84474-1	Outfall #002	Water	03/06/19 10:45	03/08/19 13:22
580-84474-2	Trip Blank	Water	03/06/19 00:01	03/08/19 13:22

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TestAmerica Seattle
 5755 8th Street E.
 Tacoma, WA 98424
 Tel. 253-922-2310
 Fax 253-922-5047
 www.testamericainc.com

Loc: 580

84474 Rush Short Hold**Chain of Custody Record**

Client: Aradis Client Contact: Peter Campbell Date: 3/6/19 Chain of Custody Number: 31852

Address: 1100 Olive Way Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____

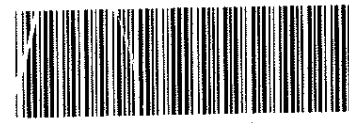
City: Seattle State: WA Zip Code: 98101 Sampler: Jason Little Lab Contact: _____

Project Name and Location (State): Edmonds Terminal Billing Contact: Elaine Walker

Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives								Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
			Air	Aqueous	Soil	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH				

OUTG. #002	3/6/19	1045		X						2				6			X	X	X	X	* USE STANDARD SILICA GEL CLEANUP * Benzene + CPAHS vs equal to bid level $< 1 \mu\text{g/L}$
TRIP BLANK				Y										6			X				



580-84474 Chain of Custody

Therm. ID: A2 Cor: 2.4 ° Inc: 2.6 °
 Cooler Desc: Med Red
 Packing: Bubble FedEx: _____
 Cust. Seal: Yes No ✓ UPS: _____
 Blue Ice: (Vet, Dry, None) Lab Cour: X
 Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify) _____

1. Relinquished By Sign/Print: <u>[Signature]</u> / <u>Jason Little</u>	Date: <u>3/8/19</u> Time: <u>1322</u>	1. Received By Sign/Print: <u>[Signature]</u> Francisco Lamy, Jr	Date: <u>3/8/19</u> Time: <u>1322</u>
2. Relinquished By Sign/Print: _____	Date: _____ Time: _____	2. Received By Sign/Print: _____	Date: _____ Time: _____
3. Relinquished By Sign/Print: _____	Date: _____ Time: _____	3. Received By Sign/Print: _____	Date: _____ Time: _____

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-84474-1

Login Number: 84474

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-84612-1

Client Project/Site: Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/2/2019 4:15:11 PM

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Job ID: 580-84612-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-84612-1

Receipt

Two samples were received on 3/14/2019 11:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

GC/MS VOA

Method(s) NWTPH-Gx: The LCS/LCSD recovered high for trifluorotoluene (surr) due to a reagent miscalculation which resulted in a concentration of 6x more tft than is required by the method. The recoveries are within range of what is expected based on the high spike, therefore the data have been qualified and reported. (LCS 580-297517/5) and (LCSD 580-297517/6).

Method(s) NWTPH-Gx: The following samples were analyzed one day outside of analytical holding time due to repeated instrument and QC failures: Outfall #002 (580-84612-1) and Trip Blank (580-84612-2). There is no charge for these samples for NWTPH-Gx analysis.

Method(s) NWTPH-Gx: The following volatile sample was analyzed with significant headspace in the sample container(s): Trip Blank (580-84612-2). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84612-1

Date Collected: 03/14/19 10:30

Matrix: Water

Date Received: 03/14/19 11:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/18/19 21:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					03/18/19 21:17	1
Toluene-d8 (Surr)	107		79 - 122					03/18/19 21:17	1
4-Bromofluorobenzene (Surr)	98		78 - 119					03/18/19 21:17	1
Dibromofluoromethane (Surr)	102		70 - 120					03/18/19 21:17	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120					03/18/19 21:17	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		03/18/19 08:57	03/20/19 20:28	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/18/19 08:57	03/20/19 20:28	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		03/18/19 08:57	03/20/19 20:28	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		03/18/19 08:57	03/20/19 20:28	1
Chrysene	ND		0.10	0.017	ug/L		03/18/19 08:57	03/20/19 20:28	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/18/19 08:57	03/20/19 20:28	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		03/18/19 08:57	03/20/19 20:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	76		53 - 120				03/18/19 08:57	03/20/19 20:28	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	H	0.25	0.10	mg/L			03/29/19 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		50 - 150					03/29/19 18:09	1
Trifluorotoluene (Surr)	109		50 - 150					03/29/19 18:09	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		03/18/19 11:37	03/19/19 20:31	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		03/18/19 11:37	03/19/19 20:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	119		50 - 150				03/18/19 11:37	03/19/19 20:31	1

TestAmerica Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-84612-2

Date Collected: 03/14/19 00:00

Matrix: Water

Date Received: 03/14/19 11:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/19/19 16:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					03/19/19 16:25	1
Toluene-d8 (Surr)	108		79 - 122					03/19/19 16:25	1
4-Bromofluorobenzene (Surr)	103		78 - 119					03/19/19 16:25	1
Dibromofluoromethane (Surr)	105		70 - 120					03/19/19 16:25	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120					03/19/19 16:25	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	H	0.25	0.10	mg/L			03/29/19 16:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67		50 - 150					03/29/19 16:21	1
Trifluorotoluene (Surr)	109		50 - 150					03/29/19 16:21	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-296541/4
Matrix: Water
Analysis Batch: 296541

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/18/19 13:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123		03/18/19 13:56	1
Toluene-d8 (Surr)	109		79 - 122		03/18/19 13:56	1
4-Bromofluorobenzene (Surr)	105		78 - 119		03/18/19 13:56	1
Dibromofluoromethane (Surr)	105		70 - 120		03/18/19 13:56	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		03/18/19 13:56	1

Lab Sample ID: LCS 580-296541/5
Matrix: Water
Analysis Batch: 296541

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	97		74 - 123
Toluene-d8 (Surr)	99		79 - 122
4-Bromofluorobenzene (Surr)	101		78 - 119
Dibromofluoromethane (Surr)	98		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Lab Sample ID: LCSD 580-296541/6
Matrix: Water
Analysis Batch: 296541

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.2		ug/L		102	65 - 135	3	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	104		79 - 122
4-Bromofluorobenzene (Surr)	102		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Lab Sample ID: MB 580-296627/5
Matrix: Water
Analysis Batch: 296627

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/19/19 11:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123		03/19/19 11:57	1
Toluene-d8 (Surr)	108		79 - 122		03/19/19 11:57	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-296627/5
Matrix: Water
Analysis Batch: 296627

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		78 - 119		03/19/19 11:57	1
Dibromofluoromethane (Surr)	105		70 - 120		03/19/19 11:57	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120		03/19/19 11:57	1

Lab Sample ID: LCS 580-296627/6
Matrix: Water
Analysis Batch: 296627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.3		ug/L		103	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	104		78 - 119
Dibromofluoromethane (Surr)	99		70 - 120
1,2-Dichloroethane-d4 (Surr)	102		70 - 120

Lab Sample ID: LCSD 580-296627/7
Matrix: Water
Analysis Batch: 296627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.3		ug/L		103	65 - 135	0	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	96		74 - 123
Toluene-d8 (Surr)	103		79 - 122
4-Bromofluorobenzene (Surr)	101		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	101		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-296469/1-A
Matrix: Water
Analysis Batch: 296712

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296469

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/18/19 08:57	03/20/19 11:19	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/18/19 08:57	03/20/19 11:19	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/18/19 08:57	03/20/19 11:19	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/18/19 08:57	03/20/19 11:19	1
Chrysene	ND		0.10	0.016	ug/L		03/18/19 08:57	03/20/19 11:19	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/18/19 08:57	03/20/19 11:19	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/18/19 08:57	03/20/19 11:19	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-296469/1-A
Matrix: Water
Analysis Batch: 296712

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296469

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	89		53 - 120	03/18/19 08:57	03/20/19 11:19	1

Lab Sample ID: LCS 580-296469/2-A
Matrix: Water
Analysis Batch: 296712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296469

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.57		ug/L		89	61 - 120
Benzo[a]pyrene	4.00	3.54		ug/L		89	65 - 120
Benzo[b]fluoranthene	4.00	3.43		ug/L		86	58 - 120
Benzo[k]fluoranthene	4.00	3.17		ug/L		79	58 - 120
Chrysene	4.00	2.94		ug/L		73	58 - 120
Dibenz(a,h)anthracene	4.00	3.57		ug/L		89	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	82		53 - 120

Lab Sample ID: LCSD 580-296469/3-A
Matrix: Water
Analysis Batch: 296712

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296469

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.66		ug/L		92	61 - 120	3	16
Benzo[a]pyrene	4.00	3.47		ug/L		87	65 - 120	2	17
Benzo[b]fluoranthene	4.00	3.47		ug/L		87	58 - 120	1	20
Benzo[k]fluoranthene	4.00	3.30		ug/L		82	58 - 120	4	20
Chrysene	4.00	3.04		ug/L		76	58 - 120	3	16
Dibenz(a,h)anthracene	4.00	3.65		ug/L		91	60 - 125	2	15
Indeno[1,2,3-cd]pyrene	4.00	3.81		ug/L		95	56 - 120	3	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	83		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-297517/4
Matrix: Water
Analysis Batch: 297517

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			03/29/19 15:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		50 - 150		03/29/19 15:00	1
Trifluorotoluene (Surr)	112		50 - 150		03/29/19 15:00	1

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-297517/5
Matrix: Water
Analysis Batch: 297517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.914		mg/L		91	79 - 120
		LCS	LCS				
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	74		50 - 150				
Trifluorotoluene (Surr)	624	X	50 - 150				

Lab Sample ID: LCSD 580-297517/6
Matrix: Water
Analysis Batch: 297517

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.862		mg/L		86	79 - 120	6	10
		LCSD	LCSD						
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	69		50 - 150						
Trifluorotoluene (Surr)	606	X	50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-296511/1-B
Matrix: Water
Analysis Batch: 296635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296511

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/18/19 11:37	03/19/19 13:30	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/18/19 11:37	03/19/19 13:30	1
		MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	118		50 - 150	03/18/19 11:37	03/19/19 13:30	1			

Lab Sample ID: LCS 580-296511/2-B
Matrix: Water
Analysis Batch: 296635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296511

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.65		mg/L		83	50 - 120
Motor Oil (>C24-C36)	2.00	1.66		mg/L		83	64 - 120
		LCS	LCS				
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	112		50 - 150				

Lab Sample ID: LCSD 580-296511/3-B
Matrix: Water
Analysis Batch: 296635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296511

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.63		mg/L		82	50 - 120	1	26

TestAmerica Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-296511/3-B
Matrix: Water
Analysis Batch: 296635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296511

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	2.00	1.66		mg/L		83	64 - 120	0	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	119		50 - 150



Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Client Sample ID: Outfall #002

Date Collected: 03/14/19 10:30

Date Received: 03/14/19 11:20

Lab Sample ID: 580-84612-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	296541	03/18/19 21:17	TL1	TAL SEA
Total/NA	Prep	3510C			296469	03/18/19 08:57	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	296712	03/20/19 20:28	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	297517	03/29/19 18:09	TL1	TAL SEA
Total/NA	Prep	3510C			296511	03/18/19 11:37	DCV	TAL SEA
Total/NA	Cleanup	3630C			296580	03/18/19 17:04	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	296635	03/19/19 20:31	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 03/14/19 00:00

Date Received: 03/14/19 11:20

Lab Sample ID: 580-84612-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	296627	03/19/19 16:25	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	297517	03/29/19 16:21	TL1	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Laboratory: TestAmerica Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

TestAmerica Job ID: 580-84612-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84612-1	Outfall #002	Water	03/14/19 10:30	03/14/19 11:20
580-84612-2	Trip Blank	Water	03/14/19 00:00	03/14/19 11:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: Arco Client Contact: Daphne Enright Date: 3/14/19 Chain of Custody Number: 35248
 Address: 1120 Olive Way Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
 City: Seattle State: WA Zip Code: 98101 Sampler: Jain Liu Lab Contact: Elaine Walker Page: 1 of 1

Project Name and Location (State): Edwards Terminal Billing Contact: _____
 Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis (Attach list if more space is needed)	Loc: 580 84612 s/ ipt	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2			NaOH
outfall #002	3/14/19	1030		X			2		8						* use standard silica clamp * Benzene + CPNHs v/g quantity level less than 1ug/L
trip blank	-	-		X					6						



Therm. ID: HZ Cor: 0.8 Unc: 1.0
 Cooler Dsc: Blue & Blue FedEx: _____
 Packing: Bubble UPS: _____
 Cust. Seal: Yes ___ No X Lab Cour: X
 Blue Ice: Yes, Dry: None Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT QC Requirements (Specify): _____

1. Relinquished By Sign/Print: <u>[Signature] Eric Knorr</u>	Date: <u>3/14/19</u> Time: <u>1120</u>	1. Received By Sign/Print: <u>[Signature] Francisco Lank, Jr</u>	Date: <u>3/14/19</u> Time: <u>1120</u>
2. Relinquished By Sign/Print: _____	Date: _____ Time: _____	2. Received By Sign/Print: _____	Date: _____ Time: _____
3. Relinquished By Sign/Print: _____	Date: _____ Time: _____	3. Received By Sign/Print: _____	Date: _____ Time: _____

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-84612-1

Login Number: 84612

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-84830-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/5/2019 2:59:39 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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results through
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Have a Question?



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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Job ID: 580-84830-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-84830-1

Receipt

Two samples were received on 3/23/2019 11:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

GC/MS VOA

Method(s) NWTPH-Gx: trifluorotoluene (surr) recovered high in the LCS/LCSD and CCVs due to unintentional double spiking. TFT recovery in the samples was within acceptance limits, therefore the data have been qualified and reported. (LCS 580-297694/5) and (LCSD 580-297694/6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-84830-1

Date Collected: 03/22/19 11:30

Matrix: Water

Date Received: 03/23/19 11:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/25/19 16:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123		03/25/19 16:27	1
Toluene-d8 (Surr)	108		79 - 122		03/25/19 16:27	1
4-Bromofluorobenzene (Surr)	103		78 - 119		03/25/19 16:27	1
Dibromofluoromethane (Surr)	97		70 - 120		03/25/19 16:27	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120		03/25/19 16:27	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		03/25/19 09:02	03/26/19 13:21	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/25/19 09:02	03/26/19 13:21	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		03/25/19 09:02	03/26/19 13:21	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		03/25/19 09:02	03/26/19 13:21	1
Chrysene	ND		0.10	0.016	ug/L		03/25/19 09:02	03/26/19 13:21	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/25/19 09:02	03/26/19 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		03/25/19 09:02	03/26/19 13:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	60		53 - 120	03/25/19 09:02	03/26/19 13:21	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		2.5	1.0	mg/L			04/02/19 20:45	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	65		50 - 150		04/02/19 20:45	10
Trifluorotoluene (Surr)	109		50 - 150		04/02/19 20:45	10

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.13	0.076	mg/L		03/26/19 07:38	03/27/19 17:21	1
Motor Oil (>C24-C36)	ND		0.41	0.11	mg/L		03/26/19 07:38	03/27/19 17:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	105		50 - 150	03/26/19 07:38	03/27/19 17:21	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-84830-2

Date Collected: 03/22/19 00:00

Matrix: Water

Date Received: 03/23/19 11:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/25/19 16:52	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					03/25/19 16:52	1
Toluene-d8 (Surr)	107		79 - 122					03/25/19 16:52	1
4-Bromofluorobenzene (Surr)	105		78 - 119					03/25/19 16:52	1
Dibromofluoromethane (Surr)	108		70 - 120					03/25/19 16:52	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120					03/25/19 16:52	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/01/19 21:51	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		50 - 150					04/01/19 21:51	1
Trifluorotoluene (Surr)	106		50 - 150					04/01/19 21:51	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-297027/4
Matrix: Water
Analysis Batch: 297027

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			03/25/19 11:35	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					03/25/19 11:35	1
Toluene-d8 (Surr)	102		79 - 122					03/25/19 11:35	1
4-Bromofluorobenzene (Surr)	100		78 - 119					03/25/19 11:35	1
Dibromofluoromethane (Surr)	97		70 - 120					03/25/19 11:35	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 120					03/25/19 11:35	1

Lab Sample ID: LCS 580-297027/5
Matrix: Water
Analysis Batch: 297027

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.95		ug/L		99	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	104		74 - 123				
Toluene-d8 (Surr)	100		79 - 122				
4-Bromofluorobenzene (Surr)	101		78 - 119				
Dibromofluoromethane (Surr)	100		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-297027/6
Matrix: Water
Analysis Batch: 297027

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.3		ug/L		103	65 - 135	4	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	101		74 - 123						
Toluene-d8 (Surr)	99		79 - 122						
4-Bromofluorobenzene (Surr)	98		78 - 119						
Dibromofluoromethane (Surr)	99		70 - 120						
1,2-Dichloroethane-d4 (Surr)	97		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-297017/1-A
Matrix: Water
Analysis Batch: 297144

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297017

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/25/19 09:02	03/26/19 12:08	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/25/19 09:02	03/26/19 12:08	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/25/19 09:02	03/26/19 12:08	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/25/19 09:02	03/26/19 12:08	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-297017/1-A
Matrix: Water
Analysis Batch: 297144

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297017

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		03/25/19 09:02	03/26/19 12:08	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		03/25/19 09:02	03/26/19 12:08	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/25/19 09:02	03/26/19 12:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		53 - 120	03/25/19 09:02	03/26/19 12:08	1

Lab Sample ID: LCS 580-297017/2-A
Matrix: Water
Analysis Batch: 297144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297017

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.38		ug/L		84	61 - 120
Benzo[a]pyrene	4.00	3.28		ug/L		82	65 - 120
Benzo[b]fluoranthene	4.00	3.55		ug/L		89	58 - 120
Benzo[k]fluoranthene	4.00	2.79		ug/L		70	58 - 120
Chrysene	4.00	2.72		ug/L		68	58 - 120
Dibenz(a,h)anthracene	4.00	3.85		ug/L		96	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	4.30		ug/L		108	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	71		53 - 120

Lab Sample ID: LCSD 580-297017/3-A
Matrix: Water
Analysis Batch: 297144

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 297017

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.47		ug/L		87	61 - 120	3	16
Benzo[a]pyrene	4.00	3.31		ug/L		83	65 - 120	1	17
Benzo[b]fluoranthene	4.00	3.49		ug/L		87	58 - 120	1	20
Benzo[k]fluoranthene	4.00	2.86		ug/L		71	58 - 120	2	20
Chrysene	4.00	2.82		ug/L		71	58 - 120	4	16
Dibenz(a,h)anthracene	4.00	3.92		ug/L		98	60 - 125	2	15
Indeno[1,2,3-cd]pyrene	4.00	4.33		ug/L		108	56 - 120	1	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	67		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-297694/4
Matrix: Water
Analysis Batch: 297694

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/01/19 20:02	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-297694/4
Matrix: Water
Analysis Batch: 297694

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	71		50 - 150		04/01/19 20:02	1
Trifluorotoluene (Surr)	113		50 - 150		04/01/19 20:02	1

Lab Sample ID: LCS 580-297694/5
Matrix: Water
Analysis Batch: 297694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	68		50 - 150
Trifluorotoluene (Surr)	322	X	50 - 150

Lab Sample ID: LCSD 580-297694/6
Matrix: Water
Analysis Batch: 297694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	75		50 - 150
Trifluorotoluene (Surr)	331	X	50 - 150

Lab Sample ID: MB 580-297759/6
Matrix: Water
Analysis Batch: 297759

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			04/02/19 16:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	63		50 - 150		04/02/19 16:41	1
Trifluorotoluene (Surr)	117		50 - 150		04/02/19 16:41	1

Lab Sample ID: LCS 580-297759/7
Matrix: Water
Analysis Batch: 297759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	70		50 - 150
Trifluorotoluene (Surr)	116		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-297759/8
Matrix: Water
Analysis Batch: 297759

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.916		mg/L		92	79 - 120	6	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	73		50 - 150						
Trifluorotoluene (Surr)	119		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-297088/1-B
Matrix: Water
Analysis Batch: 297249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297088

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/26/19 07:38	03/27/19 12:39	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/26/19 07:38	03/27/19 12:39	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	109		50 - 150				03/26/19 07:38	03/27/19 12:39	1

Lab Sample ID: LCS 580-297088/2-B
Matrix: Water
Analysis Batch: 297249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297088

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.77		mg/L		89	50 - 120
Motor Oil (>C24-C36)	2.00	1.89		mg/L		95	64 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
o-Terphenyl	87		50 - 150				

Lab Sample ID: LCSD 580-297088/3-B
Matrix: Water
Analysis Batch: 297249

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 297088

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.75		mg/L		87	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120	1	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	94		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Client Sample ID: Outfall #002

Date Collected: 03/22/19 11:30

Date Received: 03/23/19 11:40

Lab Sample ID: 580-84830-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297027	03/25/19 16:27	W1T	TAL SEA
Total/NA	Prep	3510C			297017	03/25/19 09:02	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	297144	03/26/19 13:21	RSB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		10	297759	04/02/19 20:45	Z1R	TAL SEA
Total/NA	Prep	3510C			297088	03/26/19 07:38	KO	TAL SEA
Total/NA	Cleanup	3630C			297196	03/26/19 17:17	BAH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	297249	03/27/19 17:21	T1W	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 03/22/19 00:00

Date Received: 03/23/19 11:40

Lab Sample ID: 580-84830-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297027	03/25/19 16:52	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	297694	04/01/19 21:51	CJ	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-84830-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84830-1	Outfall #002	Water	03/22/19 11:30	03/23/19 11:40
580-84830-2	Trip Blank	Water	03/22/19 00:00	03/23/19 11:40

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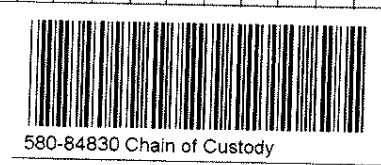
Client: **Arcadis** Client Contact: **Ophelie Enccle** Date: **3/22/19** Chain of Custody Number: **35528**
 Address: **1100 olive way, suite 800** Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Jason Little** Lab Contact: **Elainewalker** Page **1** of **1**
 Project Name and Location (State): **Edmonds Terminal** Billing Contact: _____ Analysis (Attach list if more space is needed): _____
 Contract/Purchase Order/Quote No.: _____

Loc: 580
84830

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis (Attach list if more space is needed)						
			Air	Aqueous	Sed.	Soil	Unpres.	#2SO4	HNO3	HCl	NaOH	ZnAc/NaOH								
Outfall #002	3/22/19	1130	<input checked="" type="checkbox"/>																	
Trip Blank	---	---	<input checked="" type="checkbox"/>																	

Benzene EPA 624
 NUTPH-Gx
 NUTPH-Dx w/ SGC
 CPANS 8236C SIM

PH = 7.89
* use standard SGC
* Benzene & CPAHs w/ quantitative less than 1ug/L



Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **Standard** QC Requirements (Specify): _____

1. Relinquished By Sign/Print: Eric Kueger	Date: 3/22/19 Time: 1200	1. Received By Sign/Print: FedEx	Date: 3/22/19 Time: 1200
2. Relinquished By Sign/Print: _____	Date: _____ Time: _____	2. Received By Sign/Print: Kung Haha	Date: 3-23-19 Time: 1140
3. Relinquished By Sign/Print: _____	Date: _____ Time: _____	3. Received By Sign/Print: _____	Date: _____ Time: _____

Therm. ID: **A2** Cor: **3.1** Unc: **3.5**
 Cooler Dsc: **SB** FedEx: **PO**
 Packing: **Bub** UPS: _____
 Comments: Cust. Seal: Yes No Blue Ice, Dry, None Other: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-84830-1

Login Number: 84830

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85038-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/11/2019 4:54:06 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Job ID: 580-85038-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-85038-1

Receipt

Three samples were received on 3/29/2019 11:27 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.7° C.

Receipt Exceptions

The containers for 8270 (2-250 unpres.ambers) for the following sample were received on 4/2/19 at 2.9°C. DUP-1 (580-85038-3).

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85038-1

Date Collected: 03/29/19 10:15

Matrix: Water

Date Received: 03/29/19 11:27

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123		04/04/19 19:11	1
Toluene-d8 (Surr)	100		79 - 122		04/04/19 19:11	1
4-Bromofluorobenzene (Surr)	87		78 - 119		04/04/19 19:11	1
Dibromofluoromethane (Surr)	98		70 - 120		04/04/19 19:11	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120		04/04/19 19:11	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		04/04/19 07:05	04/04/19 17:33	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/04/19 07:05	04/04/19 17:33	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		04/04/19 07:05	04/04/19 17:33	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		04/04/19 07:05	04/04/19 17:33	1
Chrysene	ND		0.10	0.016	ug/L		04/04/19 07:05	04/04/19 17:33	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/04/19 07:05	04/04/19 17:33	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		04/04/19 07:05	04/04/19 17:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		53 - 120	04/04/19 07:05	04/04/19 17:33	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/10/19 15:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		50 - 150		04/10/19 15:24	1
Trifluorotoluene (Surr)	113		50 - 150		04/10/19 15:24	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/02/19 08:34	04/04/19 18:54	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		04/02/19 08:34	04/04/19 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	04/02/19 08:34	04/04/19 18:54	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-85038-2

Date Collected: 03/29/19 00:01

Matrix: Water

Date Received: 03/29/19 11:27

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	93		74 - 123		04/04/19 19:36	1
Toluene-d8 (Surr)	103		79 - 122		04/04/19 19:36	1
4-Bromofluorobenzene (Surr)	85		78 - 119		04/04/19 19:36	1
Dibromofluoromethane (Surr)	95		70 - 120		04/04/19 19:36	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120		04/04/19 19:36	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/09/19 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		04/09/19 21:53	1
Trifluorotoluene (Surr)	107		50 - 150		04/09/19 21:53	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Client Sample ID: DUP-1
Date Collected: 03/29/19 00:01
Date Received: 03/29/19 11:27

Lab Sample ID: 580-85038-3
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 20:00	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123					04/04/19 20:00	1
Toluene-d8 (Surr)	101		79 - 122					04/04/19 20:00	1
4-Bromofluorobenzene (Surr)	85		78 - 119					04/04/19 20:00	1
Dibromofluoromethane (Surr)	99		70 - 120					04/04/19 20:00	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120					04/04/19 20:00	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		04/04/19 07:05	04/04/19 18:00	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		04/04/19 07:05	04/04/19 18:00	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		04/04/19 07:05	04/04/19 18:00	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		04/04/19 07:05	04/04/19 18:00	1
Chrysene	ND		0.11	0.017	ug/L		04/04/19 07:05	04/04/19 18:00	1
Dibenz(a,h)anthracene	ND		0.11	0.011	ug/L		04/04/19 07:05	04/04/19 18:00	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		04/04/19 07:05	04/04/19 18:00	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	59		53 - 120				04/04/19 07:05	04/04/19 18:00	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/09/19 22:23	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150					04/09/19 22:23	1
Trifluorotoluene (Surr)	115		50 - 150					04/09/19 22:23	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		04/02/19 08:34	04/04/19 19:15	1
Motor Oil (>C24-C36)	0.10	J	0.37	0.10	mg/L		04/02/19 08:34	04/04/19 19:15	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150				04/02/19 08:34	04/04/19 19:15	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-297977/4
Matrix: Water
Analysis Batch: 297977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 12:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123					04/04/19 12:11	1
Toluene-d8 (Surr)	103		79 - 122					04/04/19 12:11	1
4-Bromofluorobenzene (Surr)	86		78 - 119					04/04/19 12:11	1
Dibromofluoromethane (Surr)	106		70 - 120					04/04/19 12:11	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					04/04/19 12:11	1

Lab Sample ID: LCS 580-297977/5
Matrix: Water
Analysis Batch: 297977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	12.4		ug/L		124	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	88		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	97		78 - 119				
Dibromofluoromethane (Surr)	93		70 - 120				
1,2-Dichloroethane-d4 (Surr)	90		70 - 120				

Lab Sample ID: LCSD 580-297977/6
Matrix: Water
Analysis Batch: 297977

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	11.1		ug/L		111	65 - 135	11	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	90		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	97		78 - 119						
Dibromofluoromethane (Surr)	94		70 - 120						
1,2-Dichloroethane-d4 (Surr)	91		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-297936/1-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/04/19 07:05	04/04/19 14:05	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-297936/1-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		04/04/19 07:05	04/04/19 14:05	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/04/19 07:05	04/04/19 14:05	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/04/19 07:05	04/04/19 14:05	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		53 - 120				04/04/19 07:05	04/04/19 14:05	1

Lab Sample ID: LCS 580-297936/2-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.00		ug/L		75	61 - 120
Benzo[a]pyrene	4.00	3.03		ug/L		76	65 - 120
Benzo[b]fluoranthene	4.00	2.68		ug/L		67	58 - 120
Benzo[k]fluoranthene	4.00	3.11		ug/L		78	58 - 120
Chrysene	4.00	2.55		ug/L		64	58 - 120
Dibenz(a,h)anthracene	4.00	2.98		ug/L		75	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.22		ug/L		80	56 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	65		53 - 120				

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-298304/6
Matrix: Water
Analysis Batch: 298304

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/09/19 18:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		50 - 150					04/09/19 18:53	1
Trifluorotoluene (Surr)	107		50 - 150					04/09/19 18:53	1

Lab Sample ID: LCS 580-298304/7
Matrix: Water
Analysis Batch: 298304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.870		mg/L		87	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	96		50 - 150				
Trifluorotoluene (Surr)	127		50 - 150				

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-298304/8
Matrix: Water
Analysis Batch: 298304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.868		mg/L		87	79 - 120	0	10
		LCS	LCS						
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		50 - 150						
Trifluorotoluene (Surr)	127		50 - 150						

Lab Sample ID: MB 580-298380/6
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/10/19 11:47	1
		MB	MB						
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150					04/10/19 11:47	1
Trifluorotoluene (Surr)	127		50 - 150					04/10/19 11:47	1

Lab Sample ID: LCS 580-298380/7
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline	1.00	1.10		mg/L		110	79 - 120		
		LCS	LCS						
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	107		50 - 150						
Trifluorotoluene (Surr)	130		50 - 150						

Lab Sample ID: LCSD 580-298380/8
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	1.09		mg/L		109	79 - 120	1	10
		LCS	LCS						
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	104		50 - 150						
Trifluorotoluene (Surr)	129		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-297739/1-B
Matrix: Water
Analysis Batch: 297949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297739

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/02/19 08:34	04/04/19 16:54	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		04/02/19 08:34	04/04/19 16:54	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	95	Qualifier	50 - 150	04/02/19 08:34	04/04/19 16:54	1

Lab Sample ID: LCS 580-297739/2-B
Matrix: Water
Analysis Batch: 297949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120
Motor Oil (>C24-C36)	2.00	1.85		mg/L		92	64 - 120

Surrogate	LCS	LCS	Limits
o-Terphenyl	79	Qualifier	50 - 150

Lab Sample ID: LCSD 580-297739/3-B
Matrix: Water
Analysis Batch: 297949

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 297739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.70		mg/L		85	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	1.91		mg/L		96	64 - 120	3	24

Surrogate	LCSD	LCSD	Limits
o-Terphenyl	79	Qualifier	50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85038-1

Date Collected: 03/29/19 10:15

Matrix: Water

Date Received: 03/29/19 11:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297977	04/04/19 19:11	T1W	TAL SEA
Total/NA	Prep	3510C			297936	04/04/19 07:05	KO	TAL SEA
Total/NA	Prep	3510C			297936	04/04/19 07:05	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	297995	04/04/19 17:33	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298380	04/10/19 15:24	W1T	TAL SEA
Total/NA	Prep	3510C			297739	04/02/19 08:34	DCV	TAL SEA
Total/NA	Cleanup	3630C			297791	04/02/19 15:09	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	297949	04/04/19 18:54	TL1	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-85038-2

Date Collected: 03/29/19 00:01

Matrix: Water

Date Received: 03/29/19 11:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297977	04/04/19 19:36	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298304	04/09/19 21:53	Z1R	TAL SEA

Client Sample ID: DUP-1

Lab Sample ID: 580-85038-3

Date Collected: 03/29/19 00:01

Matrix: Water

Date Received: 03/29/19 11:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297977	04/04/19 20:00	T1W	TAL SEA
Total/NA	Prep	3510C			297936	04/04/19 07:05	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	297995	04/04/19 18:00	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298304	04/09/19 22:23	Z1R	TAL SEA
Total/NA	Prep	3510C			297739	04/02/19 08:34	DCV	TAL SEA
Total/NA	Cleanup	3630C			297791	04/02/19 15:09	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	297949	04/04/19 19:15	TL1	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85038-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85038-1	Outfall #002	Water	03/29/19 10:15	03/29/19 11:27
580-85038-2	Trip Blank	Water	03/29/19 00:01	03/29/19 11:27
580-85038-3	DUP-1	Water	03/29/19 00:01	03/29/19 11:27

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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85038-1

Login Number: 85038
List Number: 1
Creator: Gall, Brandon A

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85094-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/12/2019 3:59:28 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Job ID: 580-85094-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-85094-1

Receipt

Two samples were received on 4/2/2019 11:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

Receipt Exceptions

Two of the six VOA vials for the following sample were received unfilled (but labeled). Outfall #002 (580-85094-1[MS])

The sampling time on the chain of custody and the container labels is different than the parent sample. The QC samples are logged in identically to the parent sample. Outfall #002 (580-85094-1[MS]) and Outfall #002 (580-85094-1[MSD])

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85094-1

Date Collected: 04/02/19 10:30

Matrix: Water

Date Received: 04/02/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 20:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123		04/04/19 20:33	1
Toluene-d8 (Surr)	112		79 - 122		04/04/19 20:33	1
4-Bromofluorobenzene (Surr)	98		78 - 119		04/04/19 20:33	1
Dibromofluoromethane (Surr)	95		70 - 120		04/04/19 20:33	1
1,2-Dichloroethane-d4 (Surr)	87		70 - 120		04/04/19 20:33	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		04/04/19 07:05	04/04/19 18:52	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		04/04/19 07:05	04/04/19 18:52	1
Benzo[b]fluoranthene	ND		0.055	0.012	ug/L		04/04/19 07:05	04/04/19 18:52	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		04/04/19 07:05	04/04/19 18:52	1
Chrysene	ND		0.11	0.017	ug/L		04/04/19 07:05	04/04/19 18:52	1
Dibenz(a,h)anthracene	ND		0.11	0.011	ug/L		04/04/19 07:05	04/04/19 18:52	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		04/04/19 07:05	04/04/19 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	63		53 - 120	04/04/19 07:05	04/04/19 18:52	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/10/19 17:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		04/10/19 17:40	1
Trifluorotoluene (Surr)	114		50 - 150		04/10/19 17:40	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		04/08/19 13:13	04/09/19 15:45	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		04/08/19 13:13	04/09/19 15:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150	04/08/19 13:13	04/09/19 15:45	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-85094-2

Date Collected: 04/02/19 00:01

Matrix: Water

Date Received: 04/02/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 21:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123		04/04/19 21:46	1
Toluene-d8 (Surr)	114		79 - 122		04/04/19 21:46	1
4-Bromofluorobenzene (Surr)	100		78 - 119		04/04/19 21:46	1
Dibromofluoromethane (Surr)	93		70 - 120		04/04/19 21:46	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120		04/04/19 21:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/10/19 13:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		50 - 150		04/10/19 13:08	1
Trifluorotoluene (Surr)	122		50 - 150		04/10/19 13:08	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-297974/4
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/04/19 13:50	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					04/04/19 13:50	1
Toluene-d8 (Surr)	112		79 - 122					04/04/19 13:50	1
4-Bromofluorobenzene (Surr)	104		78 - 119					04/04/19 13:50	1
Dibromofluoromethane (Surr)	93		70 - 120					04/04/19 13:50	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					04/04/19 13:50	1

Lab Sample ID: LCS 580-297974/5
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.86		ug/L		99	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	93		74 - 123				
Toluene-d8 (Surr)	106		79 - 122				
4-Bromofluorobenzene (Surr)	104		78 - 119				
Dibromofluoromethane (Surr)	99		70 - 120				
1,2-Dichloroethane-d4 (Surr)	97		70 - 120				

Lab Sample ID: LCSD 580-297974/6
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.32		ug/L		93	65 - 135	6	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	90		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	96		70 - 120						
1,2-Dichloroethane-d4 (Surr)	95		70 - 120						

Lab Sample ID: 580-85094-1 MS
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		10.0	10.0		ug/L		100	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Trifluorotoluene (Surr)	92		74 - 123						
Toluene-d8 (Surr)	107		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-85094-1 MS
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	93		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Lab Sample ID: 580-85094-1 MSD
Matrix: Water
Analysis Batch: 297974

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		10.0	10.2		ug/L		102	65 - 135	1	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	89		74 - 123
Toluene-d8 (Surr)	106		79 - 122
4-Bromofluorobenzene (Surr)	98		78 - 119
Dibromofluoromethane (Surr)	93		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-297936/1-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 297936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/04/19 07:05	04/04/19 14:05	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/04/19 07:05	04/04/19 14:05	1
Chrysene	ND		0.10	0.016	ug/L		04/04/19 07:05	04/04/19 14:05	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/04/19 07:05	04/04/19 14:05	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/04/19 07:05	04/04/19 14:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		53 - 120	04/04/19 07:05	04/04/19 14:05	1

Lab Sample ID: LCS 580-297936/2-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.00		ug/L		75	61 - 120
Benzo[a]pyrene	4.00	3.03		ug/L		76	65 - 120
Benzo[b]fluoranthene	4.00	2.68		ug/L		67	58 - 120
Benzo[k]fluoranthene	4.00	3.11		ug/L		78	58 - 120
Chrysene	4.00	2.55		ug/L		64	58 - 120
Dibenz(a,h)anthracene	4.00	2.98		ug/L		75	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.22		ug/L		80	56 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-297936/2-A
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 297936

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	65		53 - 120

Lab Sample ID: 580-85094-1 MS
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 297936

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Benzo[a]anthracene	ND		4.31	4.27		ug/L		99	61 - 120
Benzo[a]pyrene	ND		4.31	4.28		ug/L		99	65 - 120
Benzo[b]fluoranthene	ND		4.31	3.88		ug/L		90	58 - 120
Benzo[k]fluoranthene	ND		4.31	4.19		ug/L		97	58 - 120
Chrysene	ND		4.31	3.47		ug/L		80	58 - 120
Dibenz(a,h)anthracene	ND		4.31	4.38		ug/L		102	60 - 125
Indeno[1,2,3-cd]pyrene	ND		4.31	4.79		ug/L		111	56 - 120

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	75		53 - 120

Lab Sample ID: 580-85094-1 MSD
Matrix: Water
Analysis Batch: 297995

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 297936

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Benzo[a]anthracene	ND		4.58	4.59		ug/L		100	61 - 120	7	16
Benzo[a]pyrene	ND		4.58	4.43		ug/L		97	65 - 120	4	17
Benzo[b]fluoranthene	ND		4.58	4.06		ug/L		89	58 - 120	5	20
Benzo[k]fluoranthene	ND		4.58	4.34		ug/L		95	58 - 120	3	20
Chrysene	ND		4.58	3.73		ug/L		81	58 - 120	7	16
Dibenz(a,h)anthracene	ND		4.58	4.57		ug/L		100	60 - 125	4	15
Indeno[1,2,3-cd]pyrene	ND		4.58	4.76		ug/L		104	56 - 120	0	15

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	70		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-298380/6
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			04/10/19 11:47	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	103		50 - 150		04/10/19 11:47	1
Trifluorotoluene (Surr)	127		50 - 150		04/10/19 11:47	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-298380/7
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	1.10		mg/L		110	79 - 120
Surrogate							
	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	107		50 - 150				
Trifluorotoluene (Surr)	130		50 - 150				

Lab Sample ID: LCSD 580-298380/8
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	1.09		mg/L		109	79 - 120	1	10
Surrogate									
	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	104		50 - 150						
Trifluorotoluene (Surr)	129		50 - 150						

Lab Sample ID: 580-85094-1 MS
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	1.11		mg/L		111	79 - 120
Surrogate									
	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		50 - 150						
Trifluorotoluene (Surr)	75		50 - 150						

Lab Sample ID: 580-85094-1 MSD
Matrix: Water
Analysis Batch: 298380

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		1.00	1.13		mg/L		113	79 - 120	2	10
Surrogate											
	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	102		50 - 150								
Trifluorotoluene (Surr)	75		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-298197/1-B
Matrix: Water
Analysis Batch: 298248

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298197

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/08/19 13:13	04/09/19 13:44	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		04/08/19 13:13	04/09/19 13:44	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Surrogate	MB MB %Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	104		50 - 150	04/08/19 13:13	04/09/19 13:44	1

Lab Sample ID: LCS 580-298197/2-B
Matrix: Water
Analysis Batch: 298248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120
Motor Oil (>C24-C36)	2.00	1.79		mg/L		89	64 - 120

Surrogate	LCS LCS %Recovery	Qualifier	Limits
o-Terphenyl	149		50 - 150

Lab Sample ID: LCSD 580-298197/3-B
Matrix: Water
Analysis Batch: 298248

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298197

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.53		mg/L		77	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	1.79		mg/L		90	64 - 120	0	24

Surrogate	LCSD LCSD %Recovery	Qualifier	Limits
o-Terphenyl	73		50 - 150

Lab Sample ID: 580-85094-1 MS
Matrix: Water
Analysis Batch: 298248

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 298197

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	ND		2.23	1.48		mg/L		66	50 - 120
Motor Oil (>C24-C36)	ND		2.23	1.78		mg/L		80	64 - 120

Surrogate	MS MS %Recovery	Qualifier	Limits
o-Terphenyl	77		50 - 150

Lab Sample ID: 580-85094-1 MSD
Matrix: Water
Analysis Batch: 298248

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 298197

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	ND		2.28	1.74		mg/L		76	50 - 120	16	26
Motor Oil (>C24-C36)	ND		2.28	1.97		mg/L		86	64 - 120	10	24

Surrogate	MSD MSD %Recovery	Qualifier	Limits
o-Terphenyl	70		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Client Sample ID: Outfall #002

Date Collected: 04/02/19 10:30

Date Received: 04/02/19 11:15

Lab Sample ID: 580-85094-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297974	04/04/19 20:33	TL1	TAL SEA
Total/NA	Prep	3510C			297936	04/04/19 07:05	KO	TAL SEA
Total/NA	Prep	3510C			297936	04/04/19 07:05	KO	TAL SEA
Total/NA	Analysis	8270C SIM		1	297995	04/04/19 18:52	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298380	04/10/19 17:40	W1T	TAL SEA
Total/NA	Prep	3510C			298197	04/08/19 13:13	DCV	TAL SEA
Total/NA	Cleanup	3630C			298222	04/08/19 17:05	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	298248	04/09/19 15:45	T1W	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 04/02/19 00:01

Date Received: 04/02/19 11:15

Lab Sample ID: 580-85094-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	297974	04/04/19 21:46	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298380	04/10/19 13:08	W1T	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85094-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85094-1	Outfall #002	Water	04/02/19 10:30	04/02/19 11:15
580-85094-2	Trip Blank	Water	04/02/19 00:01	04/02/19 11:15

1

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3

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10

11

Rush

 Short Hold

Chain of Custody Record

Client: <u>Accelco</u>		Client Contact: <u>Ophelia Encelle</u>		Date: <u>4/2/19</u>	Chain of Custody Number: <u>35250</u>	
Address: <u>1190 Olive Way Suite 800</u>		Telephone Number (Area Code)/Fax Number:		Lab Number: <u>85094</u>	Page <u>1</u> of <u>1</u>	
City: <u>Seattle</u>	State: <u>WA</u>	Zip Code: <u>98101</u>	Sampler: <u>Jan Little</u>	Lab Contact: <u>Elaine Walker</u>	Special Instructions/ Conditions of Receipt	
Project Name and Location (State): <u>Edmonds Terminal</u>		Billing Contact:		Analysis (Attach list if more space is needed)		
Contract/Purchase Order/Quote No.:						

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives										Special Instructions/ Conditions of Receipt							
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Bromocresol Green	NWTFI-6	NWTFI-6x visg	CPMIS 8270CSim								
outfall #002	4/2/19	1030	X				2			8							X	X	X	X				pH-7.31
outfall #002/MS	↓	1035	X				2			8							X	X	X	X				* use standard
outfall #002/MSB	↓	1040	X				2			8							X	X	X	X				* use standard
Trip Blank	—	—								6							X	X						silica gel cleanup
															Therm. ID: <u>A2</u> Cor: <u>2.9</u> ° Unc: <u>3.3</u> °									
															Cooler Dsc: <u>Ly Blue</u>		FedEx:							
															Packing: <u>Bubble</u>		UPS:							
															Cust. Seal: Yes <u>No</u> <input checked="" type="checkbox"/>		Lab Cour: <u>X</u>							
															Blue Ice: <input checked="" type="checkbox"/> Wet, <input type="checkbox"/> Dry, <input type="checkbox"/> None		Other:							



580-85094 Chain of Custody

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Disposal By Lab	(A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other <u>STAT</u>	QC Requirements (Specify)
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print: <u>[Signature]</u> <u>Jan</u>	Date: <u>4/2/19</u> Time: <u>1115</u>	1. Received By Sign/Print: <u>[Signature]</u> <u>Francisco Lung, Jr</u>	Date: <u>4/2/19</u> Time: <u>1115</u>
2. Relinquished By Sign/Print:	Date: Time:	2. Received By Sign/Print:	Date: Time:
3. Relinquished By Sign/Print:	Date: Time:	3. Received By Sign/Print:	Date: Time:

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85094-1

Login Number: 85094

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	two vials received unfilled.
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85415-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/19/2019 3:30:00 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Job ID: 580-85415-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-85415-1

Receipt

Two samples were received on 4/11/2019 12:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

GC/MS VOA

Method(s) NWTPH-Gx: The laboratory control sample (LCS) for analytical batch 580-298782 recovered outside control limits for the following analytes: Gasoline. The analyte were biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method(s) NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch analytical batch 580-298782 recovered outside control limits for the following analytes: Gasoline. The surrogate recoveries were within acceptance limits and the associated samples were non-detect for target analytes, therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The method blank for preparation batch 580-298755 and 580-298838 and analytical batch 580-298880 contained Motor Oil (>C24-C36) above the method detection limit. This target analyte concentration was less 1/20 than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85415-1

Date Collected: 04/11/19 11:30

Matrix: Water

Date Received: 04/11/19 12:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/16/19 21:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	93		74 - 123		04/16/19 21:46	1
Toluene-d8 (Surr)	115		79 - 122		04/16/19 21:46	1
4-Bromofluorobenzene (Surr)	99		78 - 119		04/16/19 21:46	1
Dibromofluoromethane (Surr)	99		70 - 120		04/16/19 21:46	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		04/16/19 21:46	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		04/17/19 09:17	04/18/19 14:50	1
Benzo[a]pyrene	ND		0.10	0.012	ug/L		04/17/19 09:17	04/18/19 14:50	1
Benzo[b]fluoranthene	ND		0.052	0.012	ug/L		04/17/19 09:17	04/18/19 14:50	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		04/17/19 09:17	04/18/19 14:50	1
Chrysene	ND		0.10	0.017	ug/L		04/17/19 09:17	04/18/19 14:50	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/17/19 09:17	04/18/19 14:50	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		04/17/19 09:17	04/18/19 14:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		53 - 120	04/17/19 09:17	04/18/19 14:50	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*	0.25	0.10	mg/L			04/17/19 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150		04/17/19 23:13	1
Trifluorotoluene (Surr)	112		50 - 150		04/17/19 23:13	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		04/17/19 09:11	04/18/19 20:42	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		04/17/19 09:11	04/18/19 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150	04/17/19 09:11	04/18/19 20:42	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-85415-2

Date Collected: 04/11/19 00:00

Matrix: Water

Date Received: 04/11/19 12:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/16/19 22:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123		04/16/19 22:10	1
Toluene-d8 (Surr)	114		79 - 122		04/16/19 22:10	1
4-Bromofluorobenzene (Surr)	98		78 - 119		04/16/19 22:10	1
Dibromofluoromethane (Surr)	96		70 - 120		04/16/19 22:10	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		04/16/19 22:10	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/18/19 21:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		50 - 150		04/18/19 21:28	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-298711/4
Matrix: Water
Analysis Batch: 298711

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/16/19 12:48	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123					04/16/19 12:48	1
Toluene-d8 (Surr)	113		79 - 122					04/16/19 12:48	1
4-Bromofluorobenzene (Surr)	105		78 - 119					04/16/19 12:48	1
Dibromofluoromethane (Surr)	99		70 - 120					04/16/19 12:48	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					04/16/19 12:48	1

Lab Sample ID: LCS 580-298711/5
Matrix: Water
Analysis Batch: 298711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.92		ug/L		99	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	94		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	96		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	106		70 - 120				

Lab Sample ID: LCSD 580-298711/6
Matrix: Water
Analysis Batch: 298711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.36		ug/L		94	65 - 135	6	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	93		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	99		70 - 120						
1,2-Dichloroethane-d4 (Surr)	102		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-298757/1-A
Matrix: Water
Analysis Batch: 298864

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298757

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/17/19 09:17	04/18/19 13:31	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/17/19 09:17	04/18/19 13:31	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/17/19 09:17	04/18/19 13:31	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/17/19 09:17	04/18/19 13:31	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-298757/1-A
Matrix: Water
Analysis Batch: 298864

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298757

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		04/17/19 09:17	04/18/19 13:31	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/17/19 09:17	04/18/19 13:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/17/19 09:17	04/18/19 13:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		53 - 120				04/17/19 09:17	04/18/19 13:31	1

Lab Sample ID: LCS 580-298757/2-A
Matrix: Water
Analysis Batch: 298864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298757

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.44		ug/L		86	61 - 120
Benzo[a]pyrene	4.00	3.70		ug/L		92	65 - 120
Benzo[b]fluoranthene	4.00	3.46		ug/L		86	58 - 120
Benzo[k]fluoranthene	4.00	3.85		ug/L		96	58 - 120
Chrysene	4.00	3.09		ug/L		77	58 - 120
Dibenz(a,h)anthracene	4.00	3.60		ug/L		90	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
Terphenyl-d14	79		53 - 120				

Lab Sample ID: LCSD 580-298757/3-A
Matrix: Water
Analysis Batch: 298864

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298757

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.51		ug/L		88	61 - 120	2	16
Benzo[a]pyrene	4.00	3.58		ug/L		89	65 - 120	3	17
Benzo[b]fluoranthene	4.00	3.22		ug/L		80	58 - 120	7	20
Benzo[k]fluoranthene	4.00	3.69		ug/L		92	58 - 120	4	20
Chrysene	4.00	3.13		ug/L		78	58 - 120	1	16
Dibenz(a,h)anthracene	4.00	3.50		ug/L		87	60 - 125	3	15
Indeno[1,2,3-cd]pyrene	4.00	3.83		ug/L		96	56 - 120	3	15
Surrogate	%Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	76		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-298782/6
Matrix: Water
Analysis Batch: 298782

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/17/19 12:23	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-298782/6
Matrix: Water
Analysis Batch: 298782

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	69		50 - 150		04/17/19 12:23	1
Trifluorotoluene (Surr)	109		50 - 150		04/17/19 12:23	1

Lab Sample ID: LCS 580-298782/7
Matrix: Water
Analysis Batch: 298782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	1.23	*	mg/L		123	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	72		50 - 150
Trifluorotoluene (Surr)	83		50 - 150

Lab Sample ID: LCSD 580-298782/8
Matrix: Water
Analysis Batch: 298782

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.935	*	mg/L		93	79 - 120	27	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	69		50 - 150
Trifluorotoluene (Surr)	82		50 - 150

Lab Sample ID: MB 580-298876/6
Matrix: Water
Analysis Batch: 298876

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			04/18/19 11:33	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	72		50 - 150		04/18/19 11:33	1

Lab Sample ID: LCS 580-298876/28
Matrix: Water
Analysis Batch: 298876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.914		mg/L		91	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	80		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-298876/29
Matrix: Water
Analysis Batch: 298876

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.889		mg/L		89	79 - 120	3	10
Surrogate									
		%Recovery	Qualifier	Limits					
4-Bromofluorobenzene (Surr)		74		50 - 150					

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-298755/1-B
Matrix: Water
Analysis Batch: 298880

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/17/19 09:11	04/18/19 11:59	1
Motor Oil (>C24-C36)	0.106	J	0.35	0.096	mg/L		04/17/19 09:11	04/18/19 11:59	1
Surrogate									
		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl		99		50 - 150			04/17/19 09:11	04/18/19 11:59	1

Lab Sample ID: LCS 580-298755/2-B
Matrix: Water
Analysis Batch: 298880

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298755

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.77		mg/L		89	50 - 120		
Motor Oil (>C24-C36)	2.00	1.89		mg/L		95	64 - 120		
Surrogate									
		%Recovery	Qualifier	Limits					
o-Terphenyl		85		50 - 150					

Lab Sample ID: LCSD 580-298755/3-B
Matrix: Water
Analysis Batch: 298880

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298755

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.75		mg/L		88	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.94		mg/L		97	64 - 120	3	24
Surrogate									
		%Recovery	Qualifier	Limits					
o-Terphenyl		82		50 - 150					

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Client Sample ID: Outfall #002

Date Collected: 04/11/19 11:30

Date Received: 04/11/19 12:00

Lab Sample ID: 580-85415-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	298711	04/16/19 21:46	KFS	TAL SEA
Total/NA	Prep	3510C			298757	04/17/19 09:17	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	298864	04/18/19 14:50	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298782	04/17/19 23:13	JSM	TAL SEA
Total/NA	Prep	3510C			298755	04/17/19 09:11	DCV	TAL SEA
Total/NA	Cleanup	3630C			298838	04/17/19 17:19	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	298880	04/18/19 20:42	TL1	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 04/11/19 00:00

Date Received: 04/11/19 12:00

Lab Sample ID: 580-85415-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	298711	04/16/19 22:10	KFS	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	298876	04/18/19 21:28	TL1	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85415-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85415-1	Outfall #002	Water	04/11/19 11:30	04/11/19 12:00
580-85415-2	Trip Blank	Water	04/11/19 00:00	04/11/19 12:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85415-1

Login Number: 85415

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85556-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
4/26/2019 4:42:49 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Job ID: 580-85556-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-85556-1**

Receipt

Two samples were received on 4/18/2019 12:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

GC/MS VOA

Method(s) 624.1: Surrogate recovery for the following sample was outside the upper control limit: Outfall #002 (580-85556-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85556-1

Date Collected: 04/17/19 09:00

Matrix: Water

Date Received: 04/18/19 12:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/22/19 18:34	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123					04/22/19 18:34	1
Toluene-d8 (Surr)	101		79 - 122					04/22/19 18:34	1
4-Bromofluorobenzene (Surr)	88		78 - 119					04/22/19 18:34	1
Dibromofluoromethane (Surr)	119		70 - 120					04/22/19 18:34	1
1,2-Dichloroethane-d4 (Surr)	121	X	70 - 120					04/22/19 18:34	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.014	ug/L		04/22/19 08:43	04/23/19 17:29	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/22/19 08:43	04/23/19 17:29	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		04/22/19 08:43	04/23/19 17:29	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		04/22/19 08:43	04/23/19 17:29	1
Chrysene	ND		0.10	0.017	ug/L		04/22/19 08:43	04/23/19 17:29	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/22/19 08:43	04/23/19 17:29	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.014	ug/L		04/22/19 08:43	04/23/19 17:29	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		53 - 120				04/22/19 08:43	04/23/19 17:29	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/24/19 18:52	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	55		50 - 150					04/24/19 18:52	1
Trifluorotoluene (Surr)	114		50 - 150					04/24/19 18:52	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		04/24/19 08:54	04/25/19 03:58	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		04/24/19 08:54	04/25/19 03:58	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150				04/24/19 08:54	04/25/19 03:58	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Client Sample ID: Trip Blank - 2

Lab Sample ID: 580-85556-2

Date Collected: 04/17/19 00:00

Matrix: Water

Date Received: 04/18/19 12:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/22/19 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	90		74 - 123		04/22/19 18:10	1
Toluene-d8 (Surr)	113		79 - 122		04/22/19 18:10	1
4-Bromofluorobenzene (Surr)	98		78 - 119		04/22/19 18:10	1
Dibromofluoromethane (Surr)	73		70 - 120		04/22/19 18:10	1
1,2-Dichloroethane-d4 (Surr)	73		70 - 120		04/22/19 18:10	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/24/19 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	52		50 - 150		04/24/19 19:19	1
Trifluorotoluene (Surr)	104		50 - 150		04/24/19 19:19	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-299075/4
Matrix: Water
Analysis Batch: 299075

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/22/19 12:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123					04/22/19 12:31	1
Toluene-d8 (Surr)	94		79 - 122					04/22/19 12:31	1
4-Bromofluorobenzene (Surr)	87		78 - 119					04/22/19 12:31	1
Dibromofluoromethane (Surr)	108		70 - 120					04/22/19 12:31	1
1,2-Dichloroethane-d4 (Surr)	114		70 - 120					04/22/19 12:31	1

Lab Sample ID: LCS 580-299075/5
Matrix: Water
Analysis Batch: 299075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.9		ug/L		109	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	94		74 - 123				
Toluene-d8 (Surr)	112		79 - 122				
4-Bromofluorobenzene (Surr)	99		78 - 119				
Dibromofluoromethane (Surr)	114		70 - 120				
1,2-Dichloroethane-d4 (Surr)	115		70 - 120				

Lab Sample ID: LCSD 580-299075/6
Matrix: Water
Analysis Batch: 299075

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.83		ug/L		98	65 - 135	10	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	81		74 - 123						
Toluene-d8 (Surr)	88		79 - 122						
4-Bromofluorobenzene (Surr)	85		78 - 119						
Dibromofluoromethane (Surr)	107		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-299032/1-A
Matrix: Water
Analysis Batch: 299134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/22/19 08:43	04/23/19 10:32	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/22/19 08:43	04/23/19 10:32	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/22/19 08:43	04/23/19 10:32	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/22/19 08:43	04/23/19 10:32	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-299032/1-A
Matrix: Water
Analysis Batch: 299134

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		04/22/19 08:43	04/23/19 10:32	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/22/19 08:43	04/23/19 10:32	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/22/19 08:43	04/23/19 10:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		53 - 120				04/22/19 08:43	04/23/19 10:32	1

Lab Sample ID: LCS 580-299032/2-A
Matrix: Water
Analysis Batch: 299134

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299032

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.29		ug/L		82	61 - 120
Benzo[a]pyrene	4.00	3.28		ug/L		82	65 - 120
Benzo[b]fluoranthene	4.00	3.01		ug/L		75	58 - 120
Benzo[k]fluoranthene	4.00	3.27		ug/L		82	58 - 120
Chrysene	4.00	2.82		ug/L		71	58 - 120
Dibenz(a,h)anthracene	4.00	3.06		ug/L		77	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.13		ug/L		78	56 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	72		53 - 120				

Lab Sample ID: LCSD 580-299032/3-A
Matrix: Water
Analysis Batch: 299134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 299032

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.47		ug/L		87	61 - 120	5	16
Benzo[a]pyrene	4.00	3.49		ug/L		87	65 - 120	6	17
Benzo[b]fluoranthene	4.00	3.31		ug/L		83	58 - 120	10	20
Benzo[k]fluoranthene	4.00	3.49		ug/L		87	58 - 120	7	20
Chrysene	4.00	3.04		ug/L		76	58 - 120	7	16
Dibenz(a,h)anthracene	4.00	3.28		ug/L		82	60 - 125	7	15
Indeno[1,2,3-cd]pyrene	4.00	3.30		ug/L		82	56 - 120	5	15
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	74		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-299260/6
Matrix: Water
Analysis Batch: 299260

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			04/24/19 16:08	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-299260/6
Matrix: Water
Analysis Batch: 299260

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	54		50 - 150		04/24/19 16:08	1
Trifluorotoluene (Surr)	99		50 - 150		04/24/19 16:08	1

Lab Sample ID: LCS 580-299260/7
Matrix: Water
Analysis Batch: 299260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	59		50 - 150
Trifluorotoluene (Surr)	72		50 - 150

Lab Sample ID: LCSD 580-299260/8
Matrix: Water
Analysis Batch: 299260

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	54		50 - 150
Trifluorotoluene (Surr)	71		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-299217/1-B
Matrix: Water
Analysis Batch: 299304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299217

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/24/19 08:54	04/25/19 02:53	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		04/24/19 08:54	04/25/19 02:53	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	94		50 - 150	04/24/19 08:54	04/25/19 02:53	1

Lab Sample ID: LCS 580-299217/2-B
Matrix: Water
Analysis Batch: 299304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299217

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	2.18		mg/L		109	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-299217/2-B
Matrix: Water
Analysis Batch: 299304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299217

<i>Surrogate</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	103		50 - 150

Lab Sample ID: LCSD 580-299217/3-B
Matrix: Water
Analysis Batch: 299304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 299217

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
#2 Diesel (C10-C24)	2.00	1.94		mg/L		97	50 - 120	7	26
Motor Oil (>C24-C36)	2.00	2.30		mg/L		115	64 - 120	5	24

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	104		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Client Sample ID: Outfall #002

Date Collected: 04/17/19 09:00

Date Received: 04/18/19 12:40

Lab Sample ID: 580-85556-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	299075	04/22/19 18:34	W1T	TAL SEA
Total/NA	Prep	3510C			299032	04/22/19 08:43	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	299134	04/23/19 17:29	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	299260	04/24/19 18:52	JSM	TAL SEA
Total/NA	Prep	3510C			299217	04/24/19 08:54	DCV	TAL SEA
Total/NA	Cleanup	3630C			299297	04/24/19 15:14	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	299304	04/25/19 03:58	W1T	TAL SEA

Client Sample ID: Trip Blank - 2

Date Collected: 04/17/19 00:00

Date Received: 04/18/19 12:40

Lab Sample ID: 580-85556-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	299075	04/22/19 18:10	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	299260	04/24/19 19:19	JSM	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85556-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85556-1	Outfall #002	Water	04/17/19 09:00	04/18/19 12:40
580-85556-2	Trip Blank - 2	Water	04/17/19 00:00	04/18/19 12:40

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85556-1

Login Number: 85556

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85758-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
5/10/2019 2:18:23 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Job ID: 580-85758-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-85758-1

Receipt

Two samples were received on 4/26/2019 1:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

GC/MS VOA

Method(s) 624.1: The surrogate recovery for the LCSD associated with analytical batch 580-299598 was outside the upper control limits.

Method(s) 624.1: Surrogate recovery for the following sample was outside the upper control limit: Trip Blank (580-85758-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-300337 recovered above the upper control limit for Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85758-1

Date Collected: 04/25/19 12:00

Matrix: Water

Date Received: 04/26/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/29/19 15:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123		04/29/19 15:19	1
Toluene-d8 (Surr)	103		79 - 122		04/29/19 15:19	1
4-Bromofluorobenzene (Surr)	95		78 - 119		04/29/19 15:19	1
Dibromofluoromethane (Surr)	91		70 - 120		04/29/19 15:19	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120		04/29/19 15:19	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/29/19 11:33	05/01/19 15:27	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/29/19 11:33	05/01/19 15:27	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/29/19 11:33	05/01/19 15:27	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/29/19 11:33	05/01/19 15:27	1
Chrysene	ND		0.10	0.016	ug/L		04/29/19 11:33	05/01/19 15:27	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/29/19 11:33	05/01/19 15:27	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/29/19 11:33	05/01/19 15:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	53		53 - 120	04/29/19 11:33	05/01/19 15:27	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/02/19 19:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		50 - 150		05/02/19 19:50	1
Trifluorotoluene (Surr)	122		50 - 150		05/02/19 19:50	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		05/07/19 14:20	05/09/19 16:20	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		05/07/19 14:20	05/09/19 16:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	84		50 - 150	05/07/19 14:20	05/09/19 16:20	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-85758-2

Date Collected: 04/25/19 00:00

Matrix: Water

Date Received: 04/26/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/29/19 15:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		04/29/19 15:43	1
Toluene-d8 (Surr)	128	X	79 - 122		04/29/19 15:43	1
4-Bromofluorobenzene (Surr)	99		78 - 119		04/29/19 15:43	1
Dibromofluoromethane (Surr)	79		70 - 120		04/29/19 15:43	1
1,2-Dichloroethane-d4 (Surr)	83		70 - 120		04/29/19 15:43	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/02/19 16:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		50 - 150		05/02/19 16:40	1
Trifluorotoluene (Surr)	130		50 - 150		05/02/19 16:40	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-299598/4
Matrix: Water
Analysis Batch: 299598

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			04/29/19 13:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123		04/29/19 13:18	1
Toluene-d8 (Surr)	116		79 - 122		04/29/19 13:18	1
4-Bromofluorobenzene (Surr)	101		78 - 119		04/29/19 13:18	1
Dibromofluoromethane (Surr)	96		70 - 120		04/29/19 13:18	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120		04/29/19 13:18	1

Lab Sample ID: LCS 580-299598/5
Matrix: Water
Analysis Batch: 299598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.86		ug/L		99	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	99		74 - 123
Toluene-d8 (Surr)	95		79 - 122
4-Bromofluorobenzene (Surr)	100		78 - 119
Dibromofluoromethane (Surr)	96		70 - 120
1,2-Dichloroethane-d4 (Surr)	110		70 - 120

Lab Sample ID: LCSD 580-299598/6
Matrix: Water
Analysis Batch: 299598

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.21		ug/L		92	65 - 135	7	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	129	X	74 - 123
Toluene-d8 (Surr)	109		79 - 122
4-Bromofluorobenzene (Surr)	93		78 - 119
Dibromofluoromethane (Surr)	97		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-299566/1-A
Matrix: Water
Analysis Batch: 300017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299566

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/29/19 11:33	05/06/19 13:33	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/29/19 11:33	05/06/19 13:33	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/29/19 11:33	05/06/19 13:33	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/29/19 11:33	05/06/19 13:33	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-299566/1-A
Matrix: Water
Analysis Batch: 300017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 299566

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		04/29/19 11:33	05/06/19 13:33	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		04/29/19 11:33	05/06/19 13:33	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/29/19 11:33	05/06/19 13:33	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	73		53 - 120				04/29/19 11:33	05/06/19 13:33	1

Lab Sample ID: LCS 580-299566/2-A
Matrix: Water
Analysis Batch: 300017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 299566

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.59		ug/L		90	61 - 120
Benzo[a]pyrene	4.00	3.40		ug/L		85	65 - 120
Benzo[b]fluoranthene	4.00	3.39		ug/L		85	58 - 120
Benzo[k]fluoranthene	4.00	3.34		ug/L		84	58 - 120
Chrysene	4.00	2.88		ug/L		72	58 - 120
Dibenz(a,h)anthracene	4.00	3.46		ug/L		87	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.69		ug/L		92	56 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	74		53 - 120				

Lab Sample ID: LCSD 580-299566/3-A
Matrix: Water
Analysis Batch: 300017

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 299566

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	4.00	3.67		ug/L		92	61 - 120	2	16
Benzo[a]pyrene	4.00	3.51		ug/L		88	65 - 120	3	17
Benzo[b]fluoranthene	4.00	3.28		ug/L		82	58 - 120	3	20
Benzo[k]fluoranthene	4.00	3.41		ug/L		85	58 - 120	2	20
Chrysene	4.00	2.88		ug/L		72	58 - 120	0	16
Dibenz(a,h)anthracene	4.00	3.47		ug/L		87	60 - 125	0	15
Indeno[1,2,3-cd]pyrene	4.00	3.72		ug/L		93	56 - 120	1	15
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	72		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-299874/6
Matrix: Water
Analysis Batch: 299874

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			05/02/19 14:25	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-299874/6
Matrix: Water
Analysis Batch: 299874

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	72		50 - 150		05/02/19 14:25	1
Trifluorotoluene (Surr)	124		50 - 150		05/02/19 14:25	1

Lab Sample ID: LCS 580-299874/7
Matrix: Water
Analysis Batch: 299874

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.972		mg/L		97	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	80		50 - 150
Trifluorotoluene (Surr)	135		50 - 150

Lab Sample ID: LCSD 580-299874/8
Matrix: Water
Analysis Batch: 299874

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.974		mg/L		97	79 - 120	0	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	81		50 - 150
Trifluorotoluene (Surr)	131		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-300124/1-B
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300124

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/07/19 14:20	05/09/19 15:10	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/07/19 14:20	05/09/19 15:10	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	88		50 - 150	05/07/19 14:20	05/09/19 15:10	1

Lab Sample ID: LCS 580-300124/2-A
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.81		mg/L		90	50 - 120
Motor Oil (>C24-C36)	2.00	2.15		mg/L		108	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-300124/2-A
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	84		50 - 150

Lab Sample ID: LCSD 580-300124/3-A
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300124

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	2.00	1.79		mg/L		89	50 - 120	1	26	
Motor Oil (>C24-C36)	2.00	2.13		mg/L		106	64 - 120	1	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	81		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Client Sample ID: Outfall #002

Date Collected: 04/25/19 12:00

Date Received: 04/26/19 13:20

Lab Sample ID: 580-85758-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	299598	04/29/19 15:19	W1T	TAL SEA
Total/NA	Prep	3510C			299566	04/29/19 11:33	DCV	TAL SEA
Total/NA	Analysis	8270C SIM		1	299741	05/01/19 15:27	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	299874	05/02/19 19:50	W1T	TAL SEA
Total/NA	Prep	3510C			300124	05/07/19 14:20	JCM	TAL SEA
Total/NA	Cleanup	3630C			300157	05/07/19 19:28	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	300337	05/09/19 16:20	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 04/25/19 00:00

Date Received: 04/26/19 13:20

Lab Sample ID: 580-85758-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	299598	04/29/19 15:43	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	299874	05/02/19 16:40	W1T	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-85758-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85758-1	Outfall #002	Water	04/25/19 12:00	04/26/19 13:20
580-85758-2	Trip Blank	Water	04/25/19 00:00	04/26/19 13:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client Arcadis		Client Contact Ophelie Encelle		Date 4/25/19	Chain of Custody Number 35908
Address 1100 olive way, suite 800		Telephone Number (Area Code)/Fax Number		Lab Number	Page 1 of 1
City Seattle	State WA	Zip Code 98101	Sampler Eric Kueger	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)
Project Name and Location (State) Edmonds Terminal			Billing Contact		

Loc: 580
85758

ons/
 eipt

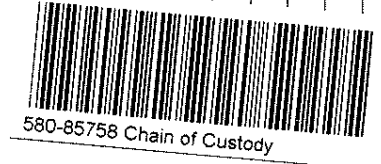
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							PH					
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH						
Outfall #002	4/25/19	1200		<input checked="" type="checkbox"/>															
Trip Blank				<input checked="" type="checkbox"/>															

BENZENE EPA 602H
 N,N-DIPH-6X
 N,N-DIPH-DL W/SGC
 CPATHS 82306 SGC

PH = 7.51

*** use standard SGC**

*** CPATHS & Benzene w/ quantitative level less than 1 mg/L**



Therm. ID: **A2** Cor: **0.9** Unc: **1.3**
 Cooler Dsc: **Med Blue**
 Packing: **Bubble** FedEx: _____
 Cust. Seal: Yes No UPS: _____
 Blue Ice, Wet, Dry, None Other: _____

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	<input type="checkbox"/> Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other Standard	QC Requirements (Specify)
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print [Signature] Eric Kueger	Date 4/26/19	Time 1320	1. Received By Sign/Print [Signature] Francisco Luna, Jr	Date 4/26/19	Time 1320
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85758-1

Login Number: 85758

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

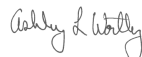
ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-85925-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
5/16/2019 2:00:26 PM
Ashley Worthy, Project Manager I
ashley.worthy@testamericainc.com
Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Chain of Custody	14
Receipt Checklists	15

Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Job ID: 580-85925-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-85925-1

Comments

No additional comments.

Receipt

The samples were received on 5/3/2019 1:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: CCC drift criteria was exceeded in the associated CCV for trifluorotoluene (surr). Surrogate recoveries were within acceptance limits, therefore the data have been reported.
(CCV 580-300213/16)

Method(s) NWTPH-Gx: CCC %D criteria was exceeded in the associated CCVs for 4-bromofluorobenzene (surr). Surrogate recoveries were within acceptance limits, therefore the data have been reported.
(CCV 580-300572/16) and (CCV 580-300572/5)

Method(s) NWTPH-Gx: CCC Drift criteria was exceeded in the associated CCVs for trifluorotoluene (surr). Surrogate recoveries were within acceptance limits, therefore the data have been reported.
(CCV 580-300572/16) and (CCV 580-300572/5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-300337 recovered above the upper control limit for Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-300013.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-85925-1

Date Collected: 05/02/19 11:00

Matrix: Water

Date Received: 05/03/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/08/19 20:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123		05/08/19 20:51	1
Toluene-d8 (Surr)	99		79 - 122		05/08/19 20:51	1
4-Bromofluorobenzene (Surr)	97		78 - 119		05/08/19 20:51	1
Dibromofluoromethane (Surr)	101		70 - 120		05/08/19 20:51	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120		05/08/19 20:51	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		05/06/19 10:41	05/08/19 01:35	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		05/06/19 10:41	05/08/19 01:35	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		05/06/19 10:41	05/08/19 01:35	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		05/06/19 10:41	05/08/19 01:35	1
Chrysene	ND		0.11	0.017	ug/L		05/06/19 10:41	05/08/19 01:35	1
Dibenz(a,h)anthracene	ND		0.11	0.011	ug/L		05/06/19 10:41	05/08/19 01:35	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		05/06/19 10:41	05/08/19 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	61		53 - 120	05/06/19 10:41	05/08/19 01:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/09/19 13:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		05/09/19 13:03	1
Trifluorotoluene (Surr)	104		50 - 150		05/09/19 13:03	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		05/07/19 14:20	05/09/19 19:48	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		05/07/19 14:20	05/09/19 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150	05/07/19 14:20	05/09/19 19:48	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-85925-2

Date Collected: 05/02/19 11:00

Matrix: Water

Date Received: 05/03/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/08/19 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		05/08/19 21:15	1
Toluene-d8 (Surr)	100		79 - 122		05/08/19 21:15	1
4-Bromofluorobenzene (Surr)	98		78 - 119		05/08/19 21:15	1
Dibromofluoromethane (Surr)	101		70 - 120		05/08/19 21:15	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120		05/08/19 21:15	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/13/19 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150		05/13/19 18:01	1
Trifluorotoluene (Surr)	123		50 - 150		05/13/19 18:01	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-300237/7
Matrix: Water
Analysis Batch: 300237

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/08/19 16:24	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123					05/08/19 16:24	1
Toluene-d8 (Surr)	99		79 - 122					05/08/19 16:24	1
4-Bromofluorobenzene (Surr)	100		78 - 119					05/08/19 16:24	1
Dibromofluoromethane (Surr)	104		70 - 120					05/08/19 16:24	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					05/08/19 16:24	1

Lab Sample ID: LCS 580-300237/4
Matrix: Water
Analysis Batch: 300237

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.70		ug/L		97	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	101		74 - 123				
Toluene-d8 (Surr)	97		79 - 122				
4-Bromofluorobenzene (Surr)	98		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	102		70 - 120				

Lab Sample ID: LCSD 580-300237/5
Matrix: Water
Analysis Batch: 300237

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.50		ug/L		95	65 - 135	2	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	102		74 - 123						
Toluene-d8 (Surr)	98		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	95		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-300013/1-A
Matrix: Water
Analysis Batch: 300446

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300013

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/06/19 10:41	05/10/19 13:20	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/06/19 10:41	05/10/19 13:20	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		05/06/19 10:41	05/10/19 13:20	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/06/19 10:41	05/10/19 13:20	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-300013/1-A
Matrix: Water
Analysis Batch: 300446

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300013

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		05/06/19 10:41	05/10/19 13:20	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		05/06/19 10:41	05/10/19 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/06/19 10:41	05/10/19 13:20	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	69		53 - 120				05/06/19 10:41	05/10/19 13:20	1

Lab Sample ID: LCS 580-300013/2-A
Matrix: Water
Analysis Batch: 300154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300013

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.45		ug/L		86	61 - 120
Benzo[a]pyrene	4.00	3.18		ug/L		79	65 - 120
Benzo[b]fluoranthene	4.00	3.53		ug/L		88	58 - 120
Benzo[k]fluoranthene	4.00	3.20		ug/L		80	58 - 120
Chrysene	4.00	2.97		ug/L		74	58 - 120
Dibenz(a,h)anthracene	4.00	3.39		ug/L		85	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	3.83		ug/L		96	56 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	71		53 - 120				

Lab Sample ID: LCSD 580-300013/3-A
Matrix: Water
Analysis Batch: 300154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300013

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.62		ug/L		90	61 - 120	5	16
Benzo[a]pyrene	4.00	3.21		ug/L		80	65 - 120	1	17
Benzo[b]fluoranthene	4.00	3.47		ug/L		87	58 - 120	2	20
Benzo[k]fluoranthene	4.00	3.20		ug/L		80	58 - 120	0	20
Chrysene	4.00	2.81		ug/L		70	58 - 120	6	16
Dibenz(a,h)anthracene	4.00	3.33		ug/L		83	60 - 125	2	15
Indeno[1,2,3-cd]pyrene	4.00	3.72		ug/L		93	56 - 120	3	15
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	70		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-300213/6
Matrix: Water
Analysis Batch: 300213

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/08/19 14:04	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-300213/6
Matrix: Water
Analysis Batch: 300213

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	98		50 - 150		05/08/19 14:04	1
Trifluorotoluene (Surr)	107		50 - 150		05/08/19 14:04	1

Lab Sample ID: LCS 580-300213/7
Matrix: Water
Analysis Batch: 300213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		50 - 150
Trifluorotoluene (Surr)	105		50 - 150

Lab Sample ID: LCSD 580-300213/8
Matrix: Water
Analysis Batch: 300213

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: MB 580-300572/6
Matrix: Water
Analysis Batch: 300572

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			05/13/19 16:13	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	74		50 - 150		05/13/19 16:13	1
Trifluorotoluene (Surr)	123		50 - 150		05/13/19 16:13	1

Lab Sample ID: LCS 580-300572/7
Matrix: Water
Analysis Batch: 300572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	76		50 - 150
Trifluorotoluene (Surr)	129		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-300572/8
Matrix: Water
Analysis Batch: 300572

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.950		mg/L		95	79 - 120	4	10
Surrogate									
		%Recovery	Qualifier	Limits					
4-Bromofluorobenzene (Surr)		79		50 - 150					
Trifluorotoluene (Surr)		71		50 - 150					

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-300124/1-B
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/07/19 14:20	05/09/19 15:10	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/07/19 14:20	05/09/19 15:10	1
Surrogate									
		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl		88		50 - 150			05/07/19 14:20	05/09/19 15:10	1

Lab Sample ID: LCS 580-300124/2-A
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.81		mg/L		90	50 - 120
Motor Oil (>C24-C36)	2.00	2.15		mg/L		108	64 - 120
Surrogate							
		%Recovery	Qualifier	Limits			
o-Terphenyl		84		50 - 150			

Lab Sample ID: LCSD 580-300124/3-A
Matrix: Water
Analysis Batch: 300337

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300124

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.79		mg/L		89	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.13		mg/L		106	64 - 120	1	24
Surrogate									
		%Recovery	Qualifier	Limits					
o-Terphenyl		81		50 - 150					

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Client Sample ID: Outfall #002

Date Collected: 05/02/19 11:00

Date Received: 05/03/19 13:20

Lab Sample ID: 580-85925-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	300237	05/08/19 20:51	DSO	TAL SEA
Total/NA	Prep	3510C			300013	05/06/19 10:41	JCM	TAL SEA
Total/NA	Analysis	8270C SIM		1	300154	05/08/19 01:35	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	300213	05/09/19 13:03	JSM	TAL SEA
Total/NA	Prep	3510C			300124	05/07/19 14:20	JCM	TAL SEA
Total/NA	Cleanup	3630C			300157	05/07/19 19:28	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	300337	05/09/19 19:48	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 05/02/19 11:00

Date Received: 05/03/19 13:20

Lab Sample ID: 580-85925-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	300237	05/08/19 21:15	DSO	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	300572	05/13/19 18:01	Z1R	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-85925-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-85925-1	Outfall #002	Water	05/02/19 11:00	05/03/19 13:20
580-85925-2	Trip Blank	Water	05/02/19 11:00	05/03/19 13:20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-85925-1

Login Number: 85925

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86071-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
5/17/2019 12:43:53 PM
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Designee for
Elaine Walker, Project Manager II
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elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Job ID: 580-86071-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-86071-1

Comments

No additional comments.

Receipt

The samples were received on 5/9/2019 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM, 8270D SIM: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: Indeno[1,2,3-cd]pyrene. These analytes may have a %D >60% if the average %D of all the analytes in the continuing calibration verification (CCV) is 30%.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The %D of surrogates in the CCV associated with batch 580-300648 were outside control limits. All associated sample surrogates fell within acceptance criteria; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The %D of surrogate in the CCV associated with batch 580-300852 was outside control limits. All associated sample surrogates fell within acceptance criteria; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-86071-1

Date Collected: 05/09/19 11:20

Matrix: Water

Date Received: 05/09/19 12:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/10/19 22:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123		05/10/19 22:21	1
Toluene-d8 (Surr)	100		79 - 122		05/10/19 22:21	1
4-Bromofluorobenzene (Surr)	97		78 - 119		05/10/19 22:21	1
Dibromofluoromethane (Surr)	93		70 - 120		05/10/19 22:21	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		05/10/19 22:21	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		05/12/19 12:29	05/16/19 19:45	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/12/19 12:29	05/16/19 19:45	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		05/12/19 12:29	05/16/19 19:45	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		05/12/19 12:29	05/16/19 19:45	1
Chrysene	ND		0.10	0.016	ug/L		05/12/19 12:29	05/16/19 19:45	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		05/12/19 12:29	05/16/19 19:45	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		05/12/19 12:29	05/16/19 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	61		53 - 120	05/12/19 12:29	05/16/19 19:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/14/19 15:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		50 - 150		05/14/19 15:34	1
Trifluorotoluene (Surr)	123		50 - 150		05/14/19 15:34	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.073	mg/L		05/12/19 13:23	05/16/19 14:39	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		05/12/19 13:23	05/16/19 14:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	103		50 - 150	05/12/19 13:23	05/16/19 14:39	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86071-2

Date Collected: 05/09/19 00:01

Matrix: Water

Date Received: 05/09/19 12:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/10/19 22:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123		05/10/19 22:45	1
Toluene-d8 (Surr)	100		79 - 122		05/10/19 22:45	1
4-Bromofluorobenzene (Surr)	98		78 - 119		05/10/19 22:45	1
Dibromofluoromethane (Surr)	92		70 - 120		05/10/19 22:45	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120		05/10/19 22:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/14/19 15:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150		05/14/19 15:07	1
Trifluorotoluene (Surr)	123		50 - 150		05/14/19 15:07	1

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-300470/7
Matrix: Water
Analysis Batch: 300470

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/10/19 17:54	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					05/10/19 17:54	1
Toluene-d8 (Surr)	100		79 - 122					05/10/19 17:54	1
4-Bromofluorobenzene (Surr)	100		78 - 119					05/10/19 17:54	1
Dibromofluoromethane (Surr)	103		70 - 120					05/10/19 17:54	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120					05/10/19 17:54	1

Lab Sample ID: LCS 580-300470/4
Matrix: Water
Analysis Batch: 300470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	102		74 - 123				
Toluene-d8 (Surr)	99		79 - 122				
4-Bromofluorobenzene (Surr)	100		78 - 119				
Dibromofluoromethane (Surr)	95		70 - 120				
1,2-Dichloroethane-d4 (Surr)	100		70 - 120				

Lab Sample ID: LCSD 580-300470/5
Matrix: Water
Analysis Batch: 300470

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.15		ug/L		81	65 - 135	26	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	103		74 - 123						
Toluene-d8 (Surr)	97		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	96		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-300505/1-A
Matrix: Water
Analysis Batch: 300881

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/12/19 12:29	05/16/19 18:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/12/19 12:29	05/16/19 18:26	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		05/12/19 12:29	05/16/19 18:26	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/12/19 12:29	05/16/19 18:26	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-300505/1-A
Matrix: Water
Analysis Batch: 300881

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		05/12/19 12:29	05/16/19 18:26	1
Dibenz(a,h)anthracene	ND		0.10	0.010	ug/L		05/12/19 12:29	05/16/19 18:26	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/12/19 12:29	05/16/19 18:26	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		53 - 120				05/12/19 12:29	05/16/19 18:26	1

Lab Sample ID: LCS 580-300505/2-A
Matrix: Water
Analysis Batch: 300881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.83		ug/L		96	61 - 120
Benzo[a]pyrene	4.00	3.89		ug/L		97	65 - 120
Benzo[b]fluoranthene	4.00	3.91		ug/L		98	58 - 120
Benzo[k]fluoranthene	4.00	3.53		ug/L		88	58 - 120
Chrysene	4.00	3.20		ug/L		80	58 - 120
Dibenz(a,h)anthracene	4.00	3.87		ug/L		97	60 - 125
Indeno[1,2,3-cd]pyrene	4.00	4.36		ug/L		109	56 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	78		53 - 120				

Lab Sample ID: LCSD 580-300505/3-A
Matrix: Water
Analysis Batch: 300881

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300505

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.80		ug/L		95	61 - 120	1	16
Benzo[a]pyrene	4.00	3.82		ug/L		95	65 - 120	2	17
Benzo[b]fluoranthene	4.00	3.81		ug/L		95	58 - 120	3	20
Benzo[k]fluoranthene	4.00	3.51		ug/L		88	58 - 120	1	20
Chrysene	4.00	3.15		ug/L		79	58 - 120	2	16
Dibenz(a,h)anthracene	4.00	3.80		ug/L		95	60 - 125	2	15
Indeno[1,2,3-cd]pyrene	4.00	4.28		ug/L		107	56 - 120	2	15
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	74		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-300648/6
Matrix: Water
Analysis Batch: 300648

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/14/19 13:47	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-300648/6
Matrix: Water
Analysis Batch: 300648

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	73		50 - 150		05/14/19 13:47	1
Trifluorotoluene (Surr)	119		50 - 150		05/14/19 13:47	1

Lab Sample ID: LCS 580-300648/7
Matrix: Water
Analysis Batch: 300648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.954		mg/L		95	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	79		50 - 150
Trifluorotoluene (Surr)	132		50 - 150

Lab Sample ID: LCSD 580-300648/8
Matrix: Water
Analysis Batch: 300648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.957		mg/L		96	79 - 120	0	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	78		50 - 150
Trifluorotoluene (Surr)	131		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-300506/1-B
Matrix: Water
Analysis Batch: 300852

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300506

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/12/19 13:23	05/16/19 12:58	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/12/19 13:23	05/16/19 12:58	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	102		50 - 150	05/12/19 13:23	05/16/19 12:58	1

Lab Sample ID: LCS 580-300506/2-B
Matrix: Water
Analysis Batch: 300852

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300506

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.79		mg/L		89	50 - 120
Motor Oil (>C24-C36)	2.00	1.91		mg/L		95	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-300506/2-B
Matrix: Water
Analysis Batch: 300852

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300506

<i>Surrogate</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	79		50 - 150

Lab Sample ID: LCSD 580-300506/3-B
Matrix: Water
Analysis Batch: 300852

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300506

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
#2 Diesel (C10-C24)	2.00	1.78		mg/L		89	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.94		mg/L		97	64 - 120	2	24

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	82		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Client Sample ID: Outfall #002

Date Collected: 05/09/19 11:20

Date Received: 05/09/19 12:30

Lab Sample ID: 580-86071-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	300470	05/10/19 22:21	W1T	TAL SEA
Total/NA	Prep	3510C			300505	05/12/19 12:29	JCM	TAL SEA
Total/NA	Analysis	8270C SIM		1	300881	05/16/19 19:45	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	300648	05/14/19 15:34	W1T	TAL SEA
Total/NA	Prep	3510C			300506	05/12/19 13:23	JCM	TAL SEA
Total/NA	Cleanup	3630C			300518	05/13/19 09:14	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	300852	05/16/19 14:39	ERZ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 05/09/19 00:01

Date Received: 05/09/19 12:30

Lab Sample ID: 580-86071-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	300470	05/10/19 22:45	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	300648	05/14/19 15:07	W1T	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86071-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-86071-1	Outfall #002	Water	05/09/19 11:20	05/09/19 12:30
580-86071-2	Trip Blank	Water	05/09/19 00:01	05/09/19 12:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush
 Short Hold

Chain of Custody Record

Client: Arcadis Client Contact: ophelie Encelle Date: 5/9/19 Chain of Custody Number: 35907
Address: 1100 olive way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: 68071 Page: 1 of 1

City: Seattle State: WA Zip Code: 98101 Sampler: Jason Little Lab Contact: Elaine Walker
Project Name and Location (State): Edmonds Terminal Billing Contact: _____ Analysis (Attach list if more space is needed):
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	#2504	HN03	HCl	NaOH	ZnAc/ NaOH			
<u>Outfall #002</u>	<u>5/9/19</u>	<u>1120</u>	<input checked="" type="checkbox"/>				<u>2</u>			<u>8</u>					<u>pH = 7.46</u> <u>* use standard</u> <u>SGC</u> <u>* Benzene & CPATHs</u> <u>w/ quantitative</u> <u>less than 1 ug/L</u>
<u>Trip Blank</u>	<u>—</u>	<u>—</u>	<input checked="" type="checkbox"/>							<u>6</u>					

BENZENE EPA624
NUWTPH-6X
NUWTPH-DX w/SGC
CPATHS BZFOC SVA

Therm. ID: A2 Cor: 1.7 Unc: 2.1
Cooler Desc: Med Blue FedEx: _____
Packing: Bubble UPS: _____
Cust. Seal: Yes No Lab Cour: ✓
Blue Ice, Wet, Dry, None Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other Standard QC Requirements (Specify): _____

1. Relinquished By: <u>Eric Krueger</u> Sign/Print	Date: <u>5/9/19</u> Time: <u>1230</u>	1. Received By: <u>Francisco Luna, Jr.</u> Sign/Print	Date: <u>5/9/19</u> Time: <u>1230</u>
2. Relinquished By: _____ Sign/Print	Date: _____ Time: _____	2. Received By: _____ Sign/Print	Date: _____ Time: _____
3. Relinquished By: _____ Sign/Print	Date: _____ Time: _____	3. Received By: _____ Sign/Print	Date: _____ Time: _____

Comments: _____



Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-86071-1

Login Number: 86071

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86270-1
Client Project/Site: Edmonds Terminal
Revision: 1

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
5/31/2019 5:05:41 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Job ID: 580-86270-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-86270-1

Revision1: May 31,2019

This revision was required because the NWTPH-Gx data for sample Outfall #002 (580-86270-1) was reported with an incorrect sample volume entered into the LIMS.

Receipt

The samples were received on 5/18/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The %D of surrogate in CCV associated with batch 580-301602 were outside control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported.
(CCV 580-301602/15), (CCV 580-301602/26) and (CCVRT 580-301602/4)

Method(s) NWTPH-Gx: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 580-301785 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method(s) NWTPH-Gx: The matrix spike (MS) recoveries for analytical batch 580-301785 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) NWTPH-Gx: The %D of surrogate (Trifluorotoluene (Surr)) for CCVRT associated with batch 580-301785 was outside the lower control limits. All associated sample surrogate fell within acceptance criteria; therefore, the data have been reported.
Outfall #002 (580-86270-1) and (CCVRT 580-301785/4)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-86270-1

Date Collected: 05/17/19 10:00

Matrix: Water

Date Received: 05/18/19 09:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/20/19 22:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123		05/20/19 22:18	1
Toluene-d8 (Surr)	106		79 - 122		05/20/19 22:18	1
4-Bromofluorobenzene (Surr)	95		78 - 119		05/20/19 22:18	1
Dibromofluoromethane (Surr)	89		70 - 120		05/20/19 22:18	1
1,2-Dichloroethane-d4 (Surr)	85		70 - 120		05/20/19 22:18	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		05/21/19 10:29	05/22/19 17:42	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		05/21/19 10:29	05/22/19 17:42	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		05/21/19 10:29	05/22/19 17:42	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		05/21/19 10:29	05/22/19 17:42	1
Chrysene	ND		0.11	0.017	ug/L		05/21/19 10:29	05/22/19 17:42	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L		05/21/19 10:29	05/22/19 17:42	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		05/21/19 10:29	05/22/19 17:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	62		53 - 120	05/21/19 10:29	05/22/19 17:42	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/28/19 17:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150		05/28/19 17:21	1
Trifluorotoluene (Surr)	88		50 - 150		05/28/19 17:21	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		05/24/19 11:00	05/25/19 18:36	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		05/24/19 11:00	05/25/19 18:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150	05/24/19 11:00	05/25/19 18:36	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86270-2

Date Collected: 05/17/19 00:00

Matrix: Water

Date Received: 05/18/19 09:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/20/19 21:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123		05/20/19 21:54	1
Toluene-d8 (Surr)	102		79 - 122		05/20/19 21:54	1
4-Bromofluorobenzene (Surr)	97		78 - 119		05/20/19 21:54	1
Dibromofluoromethane (Surr)	93		70 - 120		05/20/19 21:54	1
1,2-Dichloroethane-d4 (Surr)	84		70 - 120		05/20/19 21:54	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/24/19 12:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		50 - 150		05/24/19 12:52	1
Trifluorotoluene (Surr)	113		50 - 150		05/24/19 12:52	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-301126/7
Matrix: Water
Analysis Batch: 301126

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/20/19 17:51	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					05/20/19 17:51	1
Toluene-d8 (Surr)	105		79 - 122					05/20/19 17:51	1
4-Bromofluorobenzene (Surr)	94		78 - 119					05/20/19 17:51	1
Dibromofluoromethane (Surr)	87		70 - 120					05/20/19 17:51	1
1,2-Dichloroethane-d4 (Surr)	87		70 - 120					05/20/19 17:51	1

Lab Sample ID: LCS 580-301126/4
Matrix: Water
Analysis Batch: 301126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.0		ug/L		100	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	100		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	87		78 - 119				
Dibromofluoromethane (Surr)	82		70 - 120				
1,2-Dichloroethane-d4 (Surr)	80		70 - 120				

Lab Sample ID: LCSD 580-301126/5
Matrix: Water
Analysis Batch: 301126

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.47		ug/L		95	65 - 135	6	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	91		74 - 123						
Toluene-d8 (Surr)	94		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 119						
Dibromofluoromethane (Surr)	84		70 - 120						
1,2-Dichloroethane-d4 (Surr)	80		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-301165/1-A
Matrix: Water
Analysis Batch: 301290

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301165

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/21/19 10:29	05/22/19 12:50	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/21/19 10:29	05/22/19 12:50	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		05/21/19 10:29	05/22/19 12:50	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/21/19 10:29	05/22/19 12:50	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-301165/1-A
Matrix: Water
Analysis Batch: 301290

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301165

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		05/21/19 10:29	05/22/19 12:50	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		05/21/19 10:29	05/22/19 12:50	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/21/19 10:29	05/22/19 12:50	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	65		53 - 120				05/21/19 10:29	05/22/19 12:50	1

Lab Sample ID: LCS 580-301165/2-A
Matrix: Water
Analysis Batch: 301290

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301165

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.08		ug/L		77	61 - 129
Benzo[a]pyrene	4.00	2.85		ug/L		71	56 - 130
Benzo[b]fluoranthene	4.00	2.81		ug/L		70	53 - 133
Benzo[k]fluoranthene	4.00	2.64		ug/L		66	51 - 132
Chrysene	4.00	2.41		ug/L		60	47 - 126
Dibenz(a,h)anthracene	4.00	2.74		ug/L		69	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	2.99		ug/L		75	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	58		53 - 120				

Lab Sample ID: LCSD 580-301165/3-A
Matrix: Water
Analysis Batch: 301290

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301165

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.62		ug/L		91	61 - 129	16	31
Benzo[a]pyrene	4.00	3.30		ug/L		82	56 - 130	15	27
Benzo[b]fluoranthene	4.00	3.26		ug/L		82	53 - 133	15	25
Benzo[k]fluoranthene	4.00	2.96		ug/L		74	51 - 132	11	25
Chrysene	4.00	2.81		ug/L		70	47 - 126	15	23
Dibenz(a,h)anthracene	4.00	3.16		ug/L		79	60 - 133	14	25
Indeno[1,2,3-cd]pyrene	4.00	3.47		ug/L		87	56 - 135	15	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	67		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-301602/5
Matrix: Water
Analysis Batch: 301602

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/24/19 10:36	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-301602/5
Matrix: Water
Analysis Batch: 301602

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		50 - 150		05/24/19 10:36	1
Trifluorotoluene (Surr)	126		50 - 150		05/24/19 10:36	1

Lab Sample ID: LCS 580-301602/6
Matrix: Water
Analysis Batch: 301602

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	1.01		mg/L		101	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	77		50 - 150
Trifluorotoluene (Surr)	141		50 - 150

Lab Sample ID: LCSD 580-301602/7
Matrix: Water
Analysis Batch: 301602

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.994		mg/L		99	79 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	78		50 - 150
Trifluorotoluene (Surr)	139		50 - 150

Lab Sample ID: MB 580-301785/5
Matrix: Water
Analysis Batch: 301785

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/28/19 12:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		50 - 150		05/28/19 12:40	1
Trifluorotoluene (Surr)	106		50 - 150		05/28/19 12:40	1

Lab Sample ID: LCS 580-301785/6
Matrix: Water
Analysis Batch: 301785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	0.880	0.808		mg/L		92	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		50 - 150
Trifluorotoluene (Surr)	98		50 - 150

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-301785/7
Matrix: Water
Analysis Batch: 301785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	0.880	0.842		mg/L		96	79 - 120	4	10
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	108		50 - 150						
Trifluorotoluene (Surr)	95		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-301550/1-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301550

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/24/19 11:00	05/25/19 15:19	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/24/19 11:00	05/25/19 15:19	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150				05/24/19 11:00	05/25/19 15:19	1

Lab Sample ID: LCS 580-301550/2-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.69		mg/L		85	50 - 120
Motor Oil (>C24-C36)	2.00	1.72		mg/L		86	64 - 120
Surrogate							
	%Recovery	LCS Qualifier	Limits				
o-Terphenyl	76		50 - 150				

Lab Sample ID: LCSD 580-301550/3-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301550

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.79		mg/L		90	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	1.87		mg/L		94	64 - 120	8	24
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	78		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Client Sample ID: Outfall #002

Date Collected: 05/17/19 10:00

Date Received: 05/18/19 09:30

Lab Sample ID: 580-86270-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	301126	05/20/19 22:18	W1T	TAL SEA
Total/NA	Prep	3510C			301165	05/21/19 10:29	JCM	TAL SEA
Total/NA	Analysis	8270C SIM		1	301290	05/22/19 17:42	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	301785	05/28/19 17:21	W1T	TAL SEA
Total/NA	Prep	3510C			301550	05/24/19 11:00	DCV	TAL SEA
Total/NA	Cleanup	3630C			301603	05/24/19 16:43	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	301635	05/25/19 18:36	JCM	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 05/17/19 00:00

Date Received: 05/18/19 09:30

Lab Sample ID: 580-86270-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	301126	05/20/19 21:54	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	301602	05/24/19 12:52	CJ	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86270-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86270-1	Outfall #002	Water	05/17/19 10:00	05/18/19 09:30	
580-86270-2	Trip Blank	Water	05/17/19 00:00	05/18/19 09:30	

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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-86270-1

Login Number: 86270

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86401-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
5/31/2019 5:16:15 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Job ID: 580-86401-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-86401-1**

Receipt

Two samples were received on 5/23/2019 11:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-86401-1

Date Collected: 05/23/19 09:00

Matrix: Water

Date Received: 05/23/19 11:05

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/27/19 17:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		05/27/19 17:22	1
Toluene-d8 (Surr)	103		79 - 122		05/27/19 17:22	1
4-Bromofluorobenzene (Surr)	99		78 - 119		05/27/19 17:22	1
Dibromofluoromethane (Surr)	103		70 - 120		05/27/19 17:22	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120		05/27/19 17:22	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		05/24/19 09:20	05/28/19 19:17	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		05/24/19 09:20	05/28/19 19:17	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		05/24/19 09:20	05/28/19 19:17	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		05/24/19 09:20	05/28/19 19:17	1
Chrysene	ND		0.11	0.017	ug/L		05/24/19 09:20	05/28/19 19:17	1
Dibenz(a,h)anthracene	ND		0.11	0.027	ug/L		05/24/19 09:20	05/28/19 19:17	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		05/24/19 09:20	05/28/19 19:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		53 - 120	05/24/19 09:20	05/28/19 19:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/30/19 14:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150		05/30/19 14:42	1
Trifluorotoluene (Surr)	105		50 - 150		05/30/19 14:42	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		05/24/19 11:00	05/25/19 18:58	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		05/24/19 11:00	05/25/19 18:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150	05/24/19 11:00	05/25/19 18:58	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86401-2

Date Collected: 05/23/19 00:01

Matrix: Water

Date Received: 05/23/19 11:05

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/27/19 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123		05/27/19 17:46	1
Toluene-d8 (Surr)	101		79 - 122		05/27/19 17:46	1
4-Bromofluorobenzene (Surr)	96		78 - 119		05/27/19 17:46	1
Dibromofluoromethane (Surr)	99		70 - 120		05/27/19 17:46	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120		05/27/19 17:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/30/19 13:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		50 - 150		05/30/19 13:12	1
Trifluorotoluene (Surr)	50		50 - 150		05/30/19 13:12	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-301700/7
Matrix: Water
Analysis Batch: 301700

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/27/19 12:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					05/27/19 12:31	1
Toluene-d8 (Surr)	102		79 - 122					05/27/19 12:31	1
4-Bromofluorobenzene (Surr)	99		78 - 119					05/27/19 12:31	1
Dibromofluoromethane (Surr)	100		70 - 120					05/27/19 12:31	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					05/27/19 12:31	1

Lab Sample ID: LCS 580-301700/4
Matrix: Water
Analysis Batch: 301700

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.75		ug/L		97	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	99		74 - 123				
Toluene-d8 (Surr)	98		79 - 122				
4-Bromofluorobenzene (Surr)	99		78 - 119				
Dibromofluoromethane (Surr)	99		70 - 120				
1,2-Dichloroethane-d4 (Surr)	100		70 - 120				

Lab Sample ID: LCSD 580-301700/5
Matrix: Water
Analysis Batch: 301700

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.6		ug/L		106	65 - 135	9	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	99		74 - 123						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 119						
Dibromofluoromethane (Surr)	99		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-301526/1-A
Matrix: Water
Analysis Batch: 301762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/24/19 09:20	05/28/19 17:31	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/24/19 09:20	05/28/19 17:31	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		05/24/19 09:20	05/28/19 17:31	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/24/19 09:20	05/28/19 17:31	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-301526/1-A
Matrix: Water
Analysis Batch: 301762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		05/24/19 09:20	05/28/19 17:31	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		05/24/19 09:20	05/28/19 17:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/24/19 09:20	05/28/19 17:31	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	67		53 - 120				05/24/19 09:20	05/28/19 17:31	1

Lab Sample ID: LCS 580-301526/2-A
Matrix: Water
Analysis Batch: 301762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	4.56		ug/L		114	61 - 129
Benzo[a]pyrene	4.00	4.28		ug/L		107	56 - 130
Benzo[b]fluoranthene	4.00	4.28		ug/L		107	53 - 133
Benzo[k]fluoranthene	4.00	3.89		ug/L		97	51 - 132
Chrysene	4.00	3.63		ug/L		91	47 - 126
Dibenz(a,h)anthracene	4.00	4.01		ug/L		100	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	4.58		ug/L		114	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	78		53 - 120				

Lab Sample ID: LCSD 580-301526/3-A
Matrix: Water
Analysis Batch: 301762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301526

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	4.62		ug/L		116	61 - 129	1	31
Benzo[a]pyrene	4.00	4.28		ug/L		107	56 - 130	0	27
Benzo[b]fluoranthene	4.00	4.37		ug/L		109	53 - 133	2	25
Benzo[k]fluoranthene	4.00	3.87		ug/L		97	51 - 132	1	25
Chrysene	4.00	3.70		ug/L		93	47 - 126	2	23
Dibenz(a,h)anthracene	4.00	4.05		ug/L		101	60 - 133	1	25
Indeno[1,2,3-cd]pyrene	4.00	4.56		ug/L		114	56 - 135	0	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	79		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-301967/5
Matrix: Water
Analysis Batch: 301967

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			05/30/19 11:13	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-301967/5
Matrix: Water
Analysis Batch: 301967

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	99		50 - 150		05/30/19 11:13	1
Trifluorotoluene (Surr)	112		50 - 150		05/30/19 11:13	1

Lab Sample ID: LCS 580-301967/6
Matrix: Water
Analysis Batch: 301967

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		50 - 150
Trifluorotoluene (Surr)	107		50 - 150

Lab Sample ID: LCSD 580-301967/7
Matrix: Water
Analysis Batch: 301967

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		50 - 150
Trifluorotoluene (Surr)	105		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-301550/1-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301550

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/24/19 11:00	05/25/19 15:19	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/24/19 11:00	05/25/19 15:19	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	90		50 - 150	05/24/19 11:00	05/25/19 15:19	1

Lab Sample ID: LCS 580-301550/2-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.72		mg/L		86	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-301550/2-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301550

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	76		50 - 150

Lab Sample ID: LCSD 580-301550/3-B
Matrix: Water
Analysis Batch: 301635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301550

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	Limit	Limit
#2 Diesel (C10-C24)	2.00	1.79		mg/L		90	50 - 120	6	26	
Motor Oil (>C24-C36)	2.00	1.87		mg/L		94	64 - 120	8	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	78		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Client Sample ID: Outfall #002

Date Collected: 05/23/19 09:00

Date Received: 05/23/19 11:05

Lab Sample ID: 580-86401-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	301700	05/27/19 17:22	T1W	TAL SEA
Total/NA	Prep	3510C			301526	05/24/19 09:20	F	TAL SEA
Total/NA	Analysis	8270C SIM		1	301762	05/28/19 19:17	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	301967	05/30/19 14:42	JSM	TAL SEA
Total/NA	Prep	3510C			301550	05/24/19 11:00	DCV	TAL SEA
Total/NA	Cleanup	3630C			301603	05/24/19 16:43	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	301635	05/25/19 18:58	JCM	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 05/23/19 00:01

Date Received: 05/23/19 11:05

Lab Sample ID: 580-86401-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	301700	05/27/19 17:46	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	301967	05/30/19 13:12	JSM	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86401-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86401-1	Outfall #002	Water	05/23/19 09:00	05/23/19 11:05	
580-86401-2	Trip Blank	Water	05/23/19 00:01	05/23/19 11:05	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-86401-1

Login Number: 86401

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86513-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
6/10/2019 2:47:51 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Job ID: 580-86513-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-86513-1

Receipt

Three samples were received on 5/30/2019 11:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM, 8270D SIM: Surrogate recovery for the following samples were outside control limits: Outfall #002 (580-86513-1) and DUP-1 (580-86513-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-86513-1

Date Collected: 05/30/19 09:00

Matrix: Water

Date Received: 05/30/19 11:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/31/19 13:23	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					05/31/19 13:23	1
Toluene-d8 (Surr)	102		79 - 122					05/31/19 13:23	1
4-Bromofluorobenzene (Surr)	94		78 - 119					05/31/19 13:23	1
Dibromofluoromethane (Surr)	105		70 - 120					05/31/19 13:23	1
1,2-Dichloroethane-d4 (Surr)	109		70 - 120					05/31/19 13:23	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		05/31/19 09:03	06/06/19 13:39	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/31/19 09:03	06/06/19 13:39	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		05/31/19 09:03	06/06/19 13:39	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		05/31/19 09:03	06/06/19 13:39	1
Chrysene	ND		0.10	0.016	ug/L		05/31/19 09:03	06/06/19 13:39	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		05/31/19 09:03	06/06/19 13:39	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		05/31/19 09:03	06/06/19 13:39	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	58		53 - 120				05/31/19 09:03	06/06/19 13:39	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/05/19 16:00	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150					06/05/19 16:00	1
Trifluorotoluene (Surr)	97		50 - 150					06/05/19 16:00	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		06/03/19 09:28	06/04/19 12:55	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		06/03/19 09:28	06/04/19 12:55	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150				06/03/19 09:28	06/04/19 12:55	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Client Sample ID: DUP-1
Date Collected: 05/30/19 00:01
Date Received: 05/30/19 11:45

Lab Sample ID: 580-86513-2
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/31/19 13:48	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123					05/31/19 13:48	1
Toluene-d8 (Surr)	100		79 - 122					05/31/19 13:48	1
4-Bromofluorobenzene (Surr)	92		78 - 119					05/31/19 13:48	1
Dibromofluoromethane (Surr)	100		70 - 120					05/31/19 13:48	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120					05/31/19 13:48	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.14		0.052	0.015	ug/L		05/31/19 09:03	06/06/19 14:05	1
Benzo[a]pyrene	0.059	J	0.10	0.011	ug/L		05/31/19 09:03	06/06/19 14:05	1
Benzo[b]fluoranthene	0.094		0.052	0.011	ug/L		05/31/19 09:03	06/06/19 14:05	1
Benzo[k]fluoranthene	0.038	J	0.052	0.013	ug/L		05/31/19 09:03	06/06/19 14:05	1
Chrysene	0.071	J	0.10	0.017	ug/L		05/31/19 09:03	06/06/19 14:05	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		05/31/19 09:03	06/06/19 14:05	1
Indeno[1,2,3-cd]pyrene	0.032	J	0.052	0.015	ug/L		05/31/19 09:03	06/06/19 14:05	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	59		53 - 120				05/31/19 09:03	06/06/19 14:05	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/05/19 16:30	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150					06/05/19 16:30	1
Trifluorotoluene (Surr)	98		50 - 150					06/05/19 16:30	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		06/03/19 09:28	06/04/19 13:16	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		06/03/19 09:28	06/04/19 13:16	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150				06/03/19 09:28	06/04/19 13:16	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86513-3

Date Collected: 05/30/19 00:01

Matrix: Water

Date Received: 05/30/19 11:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/31/19 12:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		05/31/19 12:59	1
Toluene-d8 (Surr)	101		79 - 122		05/31/19 12:59	1
4-Bromofluorobenzene (Surr)	96		78 - 119		05/31/19 12:59	1
Dibromofluoromethane (Surr)	102		70 - 120		05/31/19 12:59	1
1,2-Dichloroethane-d4 (Surr)	108		70 - 120		05/31/19 12:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/05/19 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		06/05/19 13:30	1
Trifluorotoluene (Surr)	110		50 - 150		06/05/19 13:30	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-302079/7
Matrix: Water
Analysis Batch: 302079

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			05/31/19 12:10	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123					05/31/19 12:10	1
Toluene-d8 (Surr)	102		79 - 122					05/31/19 12:10	1
4-Bromofluorobenzene (Surr)	95		78 - 119					05/31/19 12:10	1
Dibromofluoromethane (Surr)	102		70 - 120					05/31/19 12:10	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 120					05/31/19 12:10	1

Lab Sample ID: LCS 580-302079/4
Matrix: Water
Analysis Batch: 302079

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.9		ug/L		109	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	96		74 - 123				
Toluene-d8 (Surr)	99		79 - 122				
4-Bromofluorobenzene (Surr)	98		78 - 119				
Dibromofluoromethane (Surr)	105		70 - 120				
1,2-Dichloroethane-d4 (Surr)	106		70 - 120				

Lab Sample ID: LCSD 580-302079/5
Matrix: Water
Analysis Batch: 302079

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	11.1		ug/L		111	65 - 135	2	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	96		74 - 123						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	104		70 - 120						
1,2-Dichloroethane-d4 (Surr)	104		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-302062/1-A
Matrix: Water
Analysis Batch: 302530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/31/19 09:03	06/06/19 11:28	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		05/31/19 09:03	06/06/19 11:28	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		05/31/19 09:03	06/06/19 11:28	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/31/19 09:03	06/06/19 11:28	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-302062/1-A
Matrix: Water
Analysis Batch: 302530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		05/31/19 09:03	06/06/19 11:28	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		05/31/19 09:03	06/06/19 11:28	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/31/19 09:03	06/06/19 11:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	67		53 - 120				05/31/19 09:03	06/06/19 11:28	1

Lab Sample ID: LCS 580-302062/2-A
Matrix: Water
Analysis Batch: 302530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	8.00	6.58		ug/L		82	61 - 129
Benzo[a]pyrene	8.00	6.53		ug/L		82	56 - 130
Benzo[b]fluoranthene	8.00	5.67		ug/L		71	53 - 133
Benzo[k]fluoranthene	8.00	6.50		ug/L		81	51 - 132
Chrysene	8.00	5.72		ug/L		72	47 - 126
Dibenz(a,h)anthracene	8.00	6.30		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	8.00	6.55		ug/L		82	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	68		53 - 120				

Lab Sample ID: LCSD 580-302062/3-A
Matrix: Water
Analysis Batch: 302530

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302062

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	8.00	5.91		ug/L		74	61 - 129	11	31
Benzo[a]pyrene	8.00	6.01		ug/L		75	56 - 130	8	27
Benzo[b]fluoranthene	8.00	5.44		ug/L		68	53 - 133	4	25
Benzo[k]fluoranthene	8.00	5.83		ug/L		73	51 - 132	11	25
Chrysene	8.00	5.14		ug/L		64	47 - 126	11	23
Dibenz(a,h)anthracene	8.00	5.81		ug/L		73	60 - 133	8	25
Indeno[1,2,3-cd]pyrene	8.00	6.10		ug/L		76	56 - 135	7	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	57		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-302392/9
Matrix: Water
Analysis Batch: 302392

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/05/19 12:03	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-302392/9
Matrix: Water
Analysis Batch: 302392

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		06/05/19 12:03	1
Trifluorotoluene (Surr)	107		50 - 150		06/05/19 12:03	1

Lab Sample ID: LCS 580-302392/6
Matrix: Water
Analysis Batch: 302392

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.857	mg/L		86	79 - 120

Surrogate	%Recovery	LCS LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	107		50 - 150

Lab Sample ID: LCSD 580-302392/7
Matrix: Water
Analysis Batch: 302392

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD Result Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.815	mg/L		81	79 - 120	5	10

Surrogate	%Recovery	LCSD LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	105		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-302209/1-A
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302209

Analyte	MB MB Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	0.11	0.065	mg/L		06/03/19 09:28	06/04/19 11:35	1
Motor Oil (>C24-C36)	ND	0.35	0.096	mg/L		06/03/19 09:28	06/04/19 11:35	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150	06/03/19 09:28	06/04/19 11:35	1

Lab Sample ID: MB 580-302209/1-B
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302209

Analyte	MB MB Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	0.11	0.065	mg/L		06/03/19 09:28	06/04/19 10:35	1
Motor Oil (>C24-C36)	ND	0.35	0.096	mg/L		06/03/19 09:28	06/04/19 10:35	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: MB 580-302209/1-B
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302209

Surrogate	MB MB %Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	06/03/19 09:28	06/04/19 10:35	1

Lab Sample ID: LCS 580-302209/2-A
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.48		mg/L		74	50 - 120
Motor Oil (>C24-C36)	2.00	1.71		mg/L		86	64 - 120

Surrogate	LCS LCS %Recovery	Qualifier	Limits
o-Terphenyl	74		50 - 150

Lab Sample ID: LCS 580-302209/2-B
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302209

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.55		mg/L		78	50 - 120
Motor Oil (>C24-C36)	2.00	1.78		mg/L		89	64 - 120

Surrogate	LCS LCS %Recovery	Qualifier	Limits
o-Terphenyl	80		50 - 150

Lab Sample ID: LCSD 580-302209/3-A
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302209

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.31		mg/L		66	50 - 120	12	26
Motor Oil (>C24-C36)	2.00	1.46		mg/L		73	64 - 120	16	24

Surrogate	LCSD LCSD %Recovery	Qualifier	Limits
o-Terphenyl	64		50 - 150

Lab Sample ID: LCSD 580-302209/3-B
Matrix: Water
Analysis Batch: 302304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302209

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.33		mg/L		66	50 - 120	15	26
Motor Oil (>C24-C36)	2.00	1.51		mg/L		76	64 - 120	17	24

Surrogate	LCSD LCSD %Recovery	Qualifier	Limits
o-Terphenyl	68		50 - 150

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Client Sample ID: Outfall #002

Date Collected: 05/30/19 09:00

Date Received: 05/30/19 11:45

Lab Sample ID: 580-86513-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	302079	05/31/19 13:23	APR	TAL SEA
Total/NA	Prep	3510C			302062	05/31/19 09:03	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	302530	06/06/19 13:39	E1L	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	302392	06/05/19 16:00	DCV	TAL SEA
Total/NA	Prep	3510C			302209	06/03/19 09:28	N1C	TAL SEA
Total/NA	Cleanup	3630C			302281	06/03/19 16:37	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	302304	06/04/19 12:55	W1T	TAL SEA

Client Sample ID: DUP-1

Date Collected: 05/30/19 00:01

Date Received: 05/30/19 11:45

Lab Sample ID: 580-86513-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	302079	05/31/19 13:48	APR	TAL SEA
Total/NA	Prep	3510C			302062	05/31/19 09:03	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	302530	06/06/19 14:05	E1L	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	302392	06/05/19 16:30	DCV	TAL SEA
Total/NA	Prep	3510C			302209	06/03/19 09:28	N1C	TAL SEA
Total/NA	Cleanup	3630C			302281	06/03/19 16:37	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	302304	06/04/19 13:16	W1T	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 05/30/19 00:01

Date Received: 05/30/19 11:45

Lab Sample ID: 580-86513-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	302079	05/31/19 12:59	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	302392	06/05/19 13:30	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-86513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86513-1	Outfall #002	Water	05/30/19 09:00	05/30/19 11:45	
580-86513-2	DUP-1	Water	05/30/19 00:01	05/30/19 11:45	
580-86513-3	Trip Blank	Water	05/30/19 00:01	05/30/19 11:45	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: **Arcadis** Client Contact: **Ophelie Encelle** Date: **5/30/19** Chain of Custody Number: **36003**
 Address: **1100 olive way, suite 800** Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
 City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Jason Little** Lab Contact: **Elaine Walker** Page **1** of **1**

Project Name and Location (State): **Edmonds Terminal** Billing Contact: _____ Analysis (Attach list if more space is needed): _____
 Contract/Purchase Order/Quote No.: _____ Loc: **580 86513** Special Instructions/Conditions of Receipt: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives																					
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other															
outfall #002	5/30/19	0900		X																								
DUP-1	5/30/19	---		X																								
Trip Blank	---	---		X																								

pH = 7.69
*** use standard S6C**
*** Benzene & CPAHs w/ quantitative level less than 1 mg/L**



Therm. ID: **A2** Cor: **7.2** Unc: **4.6**
 Cooler Dsc: **S6C**
 Packing: **BUB** FedEx: _____
 Cust. Seal: Yes ___ No **X** UPS: _____
 Blue Ice: **0** Dry, None Lab Cour: **F**
 Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **Standard** QC Requirements (Specify): _____

1. Relinquished By: <i>[Signature]</i> Eric Krueger Date: 5/30/19 Time: 1145	1. Received By: <i>[Signature]</i> Francisco Luna, Jr. Date: 5/30/19 Time: 1145
2. Relinquished By: _____ Date: _____ Time: _____	2. Received By: _____ Date: _____ Time: _____
3. Relinquished By: _____ Date: _____ Time: _____	3. Received By: _____ Date: _____ Time: _____

Comments: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-86513-1

Login Number: 86513

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86722-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
6/20/2019 1:46:33 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Job ID: 580-86722-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-86722-1**

Receipt

Two samples were received on 6/6/2019 11:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 580-302915 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-86722-1

Date Collected: 06/06/19 08:30

Matrix: Water

Date Received: 06/06/19 11:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/12/19 01:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123		06/12/19 01:46	1
Toluene-d8 (Surr)	104		79 - 122		06/12/19 01:46	1
4-Bromofluorobenzene (Surr)	99		78 - 119		06/12/19 01:46	1
Dibromofluoromethane (Surr)	99		70 - 120		06/12/19 01:46	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 120		06/12/19 01:46	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/12/19 09:46	06/14/19 11:45	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		06/12/19 09:46	06/14/19 11:45	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		06/12/19 09:46	06/14/19 11:45	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/12/19 09:46	06/14/19 11:45	1
Chrysene	ND		0.10	0.016	ug/L		06/12/19 09:46	06/14/19 11:45	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		06/12/19 09:46	06/14/19 11:45	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/12/19 09:46	06/14/19 11:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		53 - 120	06/12/19 09:46	06/14/19 11:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	F1	0.25	0.10	mg/L			06/12/19 17:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		06/12/19 17:28	1
Trifluorotoluene (Surr)	87		50 - 150		06/12/19 17:28	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		06/17/19 10:35	06/18/19 21:30	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		06/17/19 10:35	06/18/19 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	105		50 - 150	06/17/19 10:35	06/18/19 21:30	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86722-2

Date Collected: 06/06/19 00:01

Matrix: Water

Date Received: 06/06/19 11:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/12/19 02:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123		06/12/19 02:59	1
Toluene-d8 (Surr)	106		79 - 122		06/12/19 02:59	1
4-Bromofluorobenzene (Surr)	100		78 - 119		06/12/19 02:59	1
Dibromofluoromethane (Surr)	98		70 - 120		06/12/19 02:59	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120		06/12/19 02:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/12/19 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		06/12/19 15:28	1
Trifluorotoluene (Surr)	77		50 - 150		06/12/19 15:28	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-302896/7
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/11/19 22:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123					06/11/19 22:31	1
Toluene-d8 (Surr)	103		79 - 122					06/11/19 22:31	1
4-Bromofluorobenzene (Surr)	100		78 - 119					06/11/19 22:31	1
Dibromofluoromethane (Surr)	99		70 - 120					06/11/19 22:31	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					06/11/19 22:31	1

Lab Sample ID: LCS 580-302896/4
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.6		ug/L		106	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	94		74 - 123				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	98		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-302896/5
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.5		ug/L		105	65 - 135	1	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	97		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	101		78 - 119						
Dibromofluoromethane (Surr)	98		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Lab Sample ID: 580-86722-1 MS
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		10.0	8.53		ug/L		85	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Trifluorotoluene (Surr)	98		74 - 123						
Toluene-d8 (Surr)	101		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-86722-1 MS
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	109		70 - 120

Lab Sample ID: 580-86722-1 MSD
Matrix: Water
Analysis Batch: 302896

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		10.0	9.79		ug/L		98	65 - 135	14	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	96		74 - 123
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	98		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-302924/1-A
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302924

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/12/19 09:46	06/14/19 10:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		06/12/19 09:46	06/14/19 10:26	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		06/12/19 09:46	06/14/19 10:26	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/12/19 09:46	06/14/19 10:26	1
Chrysene	ND		0.10	0.016	ug/L		06/12/19 09:46	06/14/19 10:26	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		06/12/19 09:46	06/14/19 10:26	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/12/19 09:46	06/14/19 10:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		53 - 120	06/12/19 09:46	06/14/19 10:26	1

Lab Sample ID: LCS 580-302924/2-A
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	4.10		ug/L		103	61 - 129
Benzo[a]pyrene	4.00	3.89		ug/L		97	56 - 130
Benzo[b]fluoranthene	4.00	3.68		ug/L		92	53 - 133
Benzo[k]fluoranthene	4.00	3.60		ug/L		90	51 - 132
Chrysene	4.00	3.41		ug/L		85	47 - 126
Dibenz(a,h)anthracene	4.00	3.72		ug/L		93	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	4.15		ug/L		104	56 - 135

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-302924/2-A
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302924

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	79		53 - 120

Lab Sample ID: LCSD 580-302924/3-A
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302924

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	4.00	4.09		ug/L		102	61 - 129	0	31	
Benzo[a]pyrene	4.00	3.94		ug/L		99	56 - 130	1	27	
Benzo[b]fluoranthene	4.00	3.88		ug/L		97	53 - 133	5	25	
Benzo[k]fluoranthene	4.00	3.62		ug/L		90	51 - 132	1	25	
Chrysene	4.00	3.37		ug/L		84	47 - 126	1	23	
Dibenz(a,h)anthracene	4.00	3.82		ug/L		95	60 - 133	2	25	
Indeno[1,2,3-cd]pyrene	4.00	4.25		ug/L		106	56 - 135	3	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	77		53 - 120

Lab Sample ID: 580-86722-1 MS
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 302924

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.	
									Limits	RPD
Benzo[a]anthracene	ND		4.03	3.69		ug/L		92	61 - 129	
Benzo[a]pyrene	ND		4.03	3.49		ug/L		87	56 - 130	
Benzo[b]fluoranthene	ND		4.03	3.44		ug/L		85	53 - 133	
Benzo[k]fluoranthene	ND		4.03	3.22		ug/L		80	51 - 132	
Chrysene	ND		4.03	3.00		ug/L		75	47 - 126	
Dibenz(a,h)anthracene	ND		4.03	3.40		ug/L		84	60 - 133	
Indeno[1,2,3-cd]pyrene	ND		4.03	3.83		ug/L		95	56 - 135	

Surrogate	MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	70		53 - 120

Lab Sample ID: 580-86722-1 MSD
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 302924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits	RPD		
Benzo[a]anthracene	ND		4.10	3.83		ug/L		93	61 - 129	4	31	
Benzo[a]pyrene	ND		4.10	3.68		ug/L		90	56 - 130	5	27	
Benzo[b]fluoranthene	ND		4.10	3.50		ug/L		85	53 - 133	2	25	
Benzo[k]fluoranthene	ND		4.10	3.37		ug/L		82	51 - 132	4	25	
Chrysene	ND		4.10	3.08		ug/L		75	47 - 126	3	23	
Dibenz(a,h)anthracene	ND		4.10	3.59		ug/L		88	60 - 133	5	25	
Indeno[1,2,3-cd]pyrene	ND		4.10	4.05		ug/L		99	56 - 135	6	24	

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-86722-1 MSD
Matrix: Water
Analysis Batch: 303132

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 302924

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14	77		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-302915/5
Matrix: Water
Analysis Batch: 302915

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/12/19 10:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		06/12/19 10:08	1
Trifluorotoluene (Surr)	70		50 - 150		06/12/19 10:08	1

Lab Sample ID: LCS 580-302915/6
Matrix: Water
Analysis Batch: 302915

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.813		mg/L		81	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: LCSD 580-302915/7
Matrix: Water
Analysis Batch: 302915

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.809		mg/L		81	79 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	106		50 - 150

Lab Sample ID: 580-86722-1 MS
Matrix: Water
Analysis Batch: 302915

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND	F1	1.00	0.602	F1	mg/L		60	79 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	81		50 - 150

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QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-86722-1 MSD
Matrix: Water
Analysis Batch: 302915

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND	F1	1.00	0.667	F1	mg/L		67	79 - 120	10	10
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	101		50 - 150								
Trifluorotoluene (Surr)	81		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-303256/1-B
Matrix: Water
Analysis Batch: 303424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303256

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/17/19 10:35	06/18/19 18:54	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/17/19 10:35	06/18/19 18:54	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	102		50 - 150	06/17/19 10:35	06/18/19 18:54	1			

Lab Sample ID: LCS 580-303256/2-B
Matrix: Water
Analysis Batch: 303424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303256

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.75		mg/L		88	50 - 120
Motor Oil (>C24-C36)	2.00	2.01		mg/L		100	64 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	104		50 - 150				

Lab Sample ID: LCSD 580-303256/3-B
Matrix: Water
Analysis Batch: 303424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 303256

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.70		mg/L		85	50 - 120	3	26
Motor Oil (>C24-C36)	2.00	2.00		mg/L		100	64 - 120	1	24
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	116		50 - 150						

Lab Sample ID: 580-86722-1 MS
Matrix: Water
Analysis Batch: 303424

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 303256

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	ND		2.03	1.46		mg/L		72	50 - 120
Motor Oil (>C24-C36)	ND		2.03	2.11		mg/L		104	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

<i>Surrogate</i>	<i>MS</i> <i>%Recovery</i>	<i>MS</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	117		50 - 150

Lab Sample ID: 580-86722-1 MSD
Matrix: Water
Analysis Batch: 303424

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 303256

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>MSD</i> <i>Result</i>	<i>MSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i> <i>RPD</i>	<i>RPD</i> <i>Limit</i>
#2 Diesel (C10-C24)	ND		2.06	1.63		mg/L		79	50 - 120	11	26
Motor Oil (>C24-C36)	ND		2.06	2.13		mg/L		103	64 - 120	1	24

<i>Surrogate</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	108		50 - 150



Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Client Sample ID: Outfall #002

Date Collected: 06/06/19 08:30

Date Received: 06/06/19 11:45

Lab Sample ID: 580-86722-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	302896	06/12/19 01:46	APR	TAL SEA
Total/NA	Prep	3510C			302924	06/12/19 09:46	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	303132	06/14/19 11:45	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	302915	06/12/19 17:28	JSM	TAL SEA
Total/NA	Prep	3510C			303256	06/17/19 10:35	N1C	TAL SEA
Total/NA	Cleanup	3630C			303413	06/18/19 15:33	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	303424	06/18/19 21:30	JCM	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 06/06/19 00:01

Date Received: 06/06/19 11:45

Lab Sample ID: 580-86722-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	302896	06/12/19 02:59	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	302915	06/12/19 15:28	JSM	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86722-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86722-1	Outfall #002	Water	06/06/19 08:30	06/06/19 11:45	
580-86722-2	Trip Blank	Water	06/06/19 00:01	06/06/19 11:45	

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580-86722 Chain of Custody

Rush
 Short Hold

Chain of Custody Record

Client Arcadis			Client Contact Ophelie Enceve			Date 6/6/19	Chain of Custody Number 35635
Address 1100 olive way, suite 800			Telephone Number (Area Code)/Fax Number			Lab Number 86422	Page 1 of 1
City Seattle	State WA	Zip Code 98101	Sampler Jason Little	Lab Contact Elaine Walker		Analysis (Attach list if more space is needed)	
Project Name and Location (State) Edmonds Terminal			Billing Contact				Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.							

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Special Instructions/Conditions of Receipt				
			Air	Aqueous	Sec.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH						
Outfall #002	6/6/19	0830	X				2											pH = 7.63
Outfall #002 MS	↓	0835	X				2											pH = 7.62
Outfall #002 MSD	↓	0835	X				2											pH = 7.63
Trip Blank	—	—	X															
																		* use standard SGC
																		* Benzene & CPAHs w/ quantitative level less than 1 ug/L

Therm. ID: A7 Cor: 1.5 ° Unc: 1.9 °
Cooler Dsc: Med Red
Packing: Bubble FedEx: _____
Cust. Seal: Yes No X UPS: _____
Blue Ice, Wet, Dry, None Lab Cour: X
Other: _____

Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

1. Relinquished By Sign/Print 	Date 6/6/19	Time 1145	1. Received By Sign/Print 	Date 6/6/19	Time 1145
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86920-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
6/26/2019 12:39:17 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Job ID: 580-86920-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-86920-1

Receipt

Two samples were received on 6/13/2019 1:23 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch analytical batch 580-303592 recovered outside control limits for the following analytes: Gasoline. The RPD limit is 10 and the LCS/LCSD RPD is 11. Recovery for the affected analyte was within the limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: (580-86937-G-13-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Client Sample ID: Outfall 002

Lab Sample ID: 580-86920-1

Date Collected: 06/12/19 15:20

Matrix: Water

Date Received: 06/13/19 13:23

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/21/19 02:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		06/21/19 02:10	1
Toluene-d8 (Surr)	103		79 - 122		06/21/19 02:10	1
4-Bromofluorobenzene (Surr)	100		78 - 119		06/21/19 02:10	1
Dibromofluoromethane (Surr)	105		70 - 120		06/21/19 02:10	1
1,2-Dichloroethane-d4 (Surr)	115		70 - 120		06/21/19 02:10	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		06/17/19 14:53	06/18/19 18:09	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		06/17/19 14:53	06/18/19 18:09	1
Benzo[b]fluoranthene	ND		0.056	0.012	ug/L		06/17/19 14:53	06/18/19 18:09	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		06/17/19 14:53	06/18/19 18:09	1
Chrysene	ND		0.11	0.018	ug/L		06/17/19 14:53	06/18/19 18:09	1
Dibenz(a,h)anthracene	ND		0.11	0.029	ug/L		06/17/19 14:53	06/18/19 18:09	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		06/17/19 14:53	06/18/19 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	65		53 - 120	06/17/19 14:53	06/18/19 18:09	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*	0.25	0.10	mg/L			06/20/19 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		50 - 150		06/20/19 13:22	1
Trifluorotoluene (Surr)	108		50 - 150		06/20/19 13:22	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		06/24/19 15:47	06/25/19 18:23	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		06/24/19 15:47	06/25/19 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	106		50 - 150	06/24/19 15:47	06/25/19 18:23	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-86920-2

Date Collected: 06/12/19 00:01

Matrix: Water

Date Received: 06/13/19 13:23

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/21/19 01:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123		06/21/19 01:45	1
Toluene-d8 (Surr)	101		79 - 122		06/21/19 01:45	1
4-Bromofluorobenzene (Surr)	101		78 - 119		06/21/19 01:45	1
Dibromofluoromethane (Surr)	103		70 - 120		06/21/19 01:45	1
1,2-Dichloroethane-d4 (Surr)	114		70 - 120		06/21/19 01:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/19/19 12:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		50 - 150		06/19/19 12:12	1
Trifluorotoluene (Surr)	77		50 - 150		06/19/19 12:12	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-303658/7
Matrix: Water
Analysis Batch: 303658

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			06/21/19 00:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		06/21/19 00:32	1
Toluene-d8 (Surr)	103		79 - 122		06/21/19 00:32	1
4-Bromofluorobenzene (Surr)	97		78 - 119		06/21/19 00:32	1
Dibromofluoromethane (Surr)	100		70 - 120		06/21/19 00:32	1
1,2-Dichloroethane-d4 (Surr)	113		70 - 120		06/21/19 00:32	1

Lab Sample ID: LCS 580-303658/4
Matrix: Water
Analysis Batch: 303658

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.0		ug/L		110	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	95		78 - 119
Dibromofluoromethane (Surr)	102		70 - 120
1,2-Dichloroethane-d4 (Surr)	106		70 - 120

Lab Sample ID: LCSD 580-303658/5
Matrix: Water
Analysis Batch: 303658

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	11.1		ug/L		111	65 - 135	1	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	98		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	106		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-303300/1-A
Matrix: Water
Analysis Batch: 303352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/17/19 14:53	06/18/19 11:08	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		06/17/19 14:53	06/18/19 11:08	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		06/17/19 14:53	06/18/19 11:08	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/17/19 14:53	06/18/19 11:08	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-303300/1-A
Matrix: Water
Analysis Batch: 303352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		06/17/19 14:53	06/18/19 11:08	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		06/17/19 14:53	06/18/19 11:08	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/17/19 14:53	06/18/19 11:08	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	76		53 - 120				06/17/19 14:53	06/18/19 11:08	1

Lab Sample ID: LCS 580-303300/2-A
Matrix: Water
Analysis Batch: 303352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.47		ug/L		87	61 - 129
Benzo[a]pyrene	4.00	3.29		ug/L		82	56 - 130
Benzo[b]fluoranthene	4.00	3.55		ug/L		89	53 - 133
Benzo[k]fluoranthene	4.00	3.15		ug/L		79	51 - 132
Chrysene	4.00	2.96		ug/L		74	47 - 126
Dibenz(a,h)anthracene	4.00	3.35		ug/L		84	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Terphenyl-d14	74		53 - 120				

Lab Sample ID: LCSD 580-303300/3-A
Matrix: Water
Analysis Batch: 303352

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 303300

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.71		ug/L		93	61 - 129	7	31
Benzo[a]pyrene	4.00	3.40		ug/L		85	56 - 130	3	27
Benzo[b]fluoranthene	4.00	3.67		ug/L		92	53 - 133	3	25
Benzo[k]fluoranthene	4.00	3.27		ug/L		82	51 - 132	4	25
Chrysene	4.00	3.14		ug/L		78	47 - 126	6	23
Dibenz(a,h)anthracene	4.00	3.48		ug/L		87	60 - 133	4	25
Indeno[1,2,3-cd]pyrene	4.00	3.87		ug/L		97	56 - 135	4	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	74		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-303490/5
Matrix: Water
Analysis Batch: 303490

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			06/19/19 10:12	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-303490/5
Matrix: Water
Analysis Batch: 303490

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	98		50 - 150		06/19/19 10:12	1
Trifluorotoluene (Surr)	118		50 - 150		06/19/19 10:12	1

Lab Sample ID: LCS 580-303490/6
Matrix: Water
Analysis Batch: 303490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	112		50 - 150
Trifluorotoluene (Surr)	116		50 - 150

Lab Sample ID: LCSD 580-303490/7
Matrix: Water
Analysis Batch: 303490

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	111		50 - 150
Trifluorotoluene (Surr)	113		50 - 150

Lab Sample ID: MB 580-303592/5
Matrix: Water
Analysis Batch: 303592

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			06/20/19 10:13	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	99		50 - 150		06/20/19 10:13	1
Trifluorotoluene (Surr)	123		50 - 150		06/20/19 10:13	1

Lab Sample ID: LCS 580-303592/6
Matrix: Water
Analysis Batch: 303592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		50 - 150
Trifluorotoluene (Surr)	115		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-303592/7
Matrix: Water
Analysis Batch: 303592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.930	*	mg/L		93	79 - 120	11	10
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	110		50 - 150						
Trifluorotoluene (Surr)	115		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-303902/1-A
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/24/19 15:47	06/25/19 17:15	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/24/19 15:47	06/25/19 17:15	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150				06/24/19 15:47	06/25/19 17:15	1

Lab Sample ID: MB 580-303902/1-B
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/24/19 15:47	06/25/19 16:07	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/24/19 15:47	06/25/19 16:07	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150				06/24/19 15:47	06/25/19 16:07	1

Lab Sample ID: LCS 580-303902/2-A
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.88		mg/L		94	50 - 120
Motor Oil (>C24-C36)	2.00	2.13		mg/L		106	64 - 120
Surrogate							
	%Recovery	LCS Qualifier	Limits				
o-Terphenyl	116		50 - 150				

Lab Sample ID: LCS 580-303902/2-B
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.92		mg/L		96	50 - 120
Motor Oil (>C24-C36)	2.00	2.18		mg/L		109	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	103		50 - 150

Lab Sample ID: LCSD 580-303902/3-A
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 303902

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCSD</i> <i>Result</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
#2 Diesel (C10-C24)	2.00	1.77		mg/L		89	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	2.03		mg/L		101	64 - 120	5	24

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	96		50 - 150

Lab Sample ID: LCSD 580-303902/3-B
Matrix: Water
Analysis Batch: 303963

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 303902

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCSD</i> <i>Result</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
#2 Diesel (C10-C24)	2.00	1.83		mg/L		92	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	2.14		mg/L		107	64 - 120	2	24

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	118		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Client Sample ID: Outfall 002

Date Collected: 06/12/19 15:20

Date Received: 06/13/19 13:23

Lab Sample ID: 580-86920-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	303658	06/21/19 02:10	APR	TAL SEA
Total/NA	Prep	3510C			303300	06/17/19 14:53	JCM	TAL SEA
Total/NA	Analysis	8270C SIM		1	303352	06/18/19 18:09	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	303592	06/20/19 13:22	DCV	TAL SEA
Total/NA	Prep	3510C			303902	06/24/19 15:47	N1C	TAL SEA
Total/NA	Cleanup	3630C			303911	06/24/19 18:22	DCV	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	303963	06/25/19 18:23	T1W	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 06/12/19 00:01

Date Received: 06/13/19 13:23

Lab Sample ID: 580-86920-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	303658	06/21/19 01:45	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	303490	06/19/19 12:12	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-86920-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86920-1	Outfall 002	Water	06/12/19 15:20	06/13/19 13:23	
580-86920-2	Trip Blank	Water	06/12/19 00:01	06/13/19 13:23	

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Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-86920-1

Login Number: 86920

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87576-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

Kristine D. Allen

Authorized for release by:
7/31/2019 5:36:16 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Job ID: 580-87576-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-87576-1

Comments

No additional comments.

Receipt

The samples were received on 7/11/2019 11:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.7° C.

GC Semi VOA

Method(s) NWTPH-Dx: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-306395 and 580-306459 and analytical batch 580-306539 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-87576-1

Date Collected: 07/11/19 09:45

Matrix: Water

Date Received: 07/11/19 11:25

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		07/23/19 12:20	07/30/19 17:26	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		07/23/19 12:20	07/30/19 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	102		50 - 150	07/23/19 12:20	07/30/19 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.6	HF			SU			07/22/19 12:07	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-306395/1-B
Matrix: Water
Analysis Batch: 306539

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306395

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		07/23/19 12:20	07/24/19 17:53	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		07/23/19 12:20	07/24/19 17:53	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	89		50 - 150				07/23/19 12:20	07/24/19 17:53	1

Lab Sample ID: LCS 580-306395/2-B
Matrix: Water
Analysis Batch: 306539

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306395

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
#2 Diesel (C10-C24)	2.00	2.00		mg/L		100	50 - 120
Motor Oil (>C24-C36)	2.00	2.66	*	mg/L		133	64 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
<i>o</i> -Terphenyl	97		50 - 150				

Lab Sample ID: LCSD 580-306395/3-B
Matrix: Water
Analysis Batch: 306539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306395

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
#2 Diesel (C10-C24)	2.00	2.04		mg/L		102	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	2.69	*	mg/L		135	64 - 120	1	24
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	88		50 - 150						

Method: 9040C - pH

Lab Sample ID: 580-87576-1 DU
Matrix: Water
Analysis Batch: 306263

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
pH	8.6	HF	8.6		SU		0.1	1

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-87576-1

Date Collected: 07/11/19 09:45

Matrix: Water

Date Received: 07/11/19 11:25

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	3510C			306395	07/23/19 12:20	N1C	TAL SEA
Total/NA	Cleanup	3630C			306459	07/29/19 15:19	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	307042	07/30/19 17:26	CJ	TAL SEA
Total/NA	Analysis	9040C		1	306263	07/22/19 12:07	ESB	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State		2901	11-05-19
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
USDA	US Federal Programs		P330-17-00039	02-10-20
Washington	State		C553	02-17-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

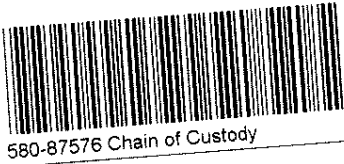
Job ID: 580-87576-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87576-1	Outfall #002	Water	07/11/19 09:45	07/11/19 11:25	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: Arcadis Client Contact: Peter Campbell Date: 7/11/2019 Chain of Custody Number: 35637
Address: 1100 Olive Way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
City: Seattle State: WA Zip Code: 98101 Sampler: Ryan Brauchle Lab Contact: Elaine Walker Page 1 of 1
Project Name and Location (State): Edmonds Terminal (WA) Billing Contact: _____ Analysis (Attach list if more space is needed): _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis (Attach list if more space is needed)	Loc: 580 87576 s/ <u>nt</u>	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
Outfall #002	7-11-2019	0945		X											pH = 7.44
Trip Blank	-	-		X											
															Run NWTPH-Dx with standard silica gel cleanup (SGC)
															Benzene & cPAHs require quantitative level < 1.0 µg/L



Therm. ID: A2 Cor: 7.7 °C Unc: 8.0 °C
Cooler Desc: Med blue
Packing: 6/6 FedEx: _____
Cust. Seal: Yes No X UPS: _____
Blue Ice, Wet, Dry, None Lab Cour: _____
Other: Client

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____
Sample Disposal Disposal By La _____

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify) _____

1. Relinquished By Sign/Print <u>Ryan Brauchle</u>	Date <u>7-11-19</u>	Time <u>1125</u>	1. Received By Sign/Print <u>Tom Blankinship</u>	Date <u>7/11/19</u>	Time <u>1125</u>
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-87576-1

Login Number: 87576

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87576-2
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
7/17/2019 5:17:02 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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Have a Question?



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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Job ID: 580-87576-2

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-87576-2

Comments

No additional comments.

Receipt

The samples were received on 7/11/2019 11:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.7° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Client Sample ID: Outfall #002

Lab Sample ID: 580-87576-1

Date Collected: 07/11/19 09:45

Matrix: Water

Date Received: 07/11/19 11:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/12/19 18:08	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123					07/12/19 18:08	1
Toluene-d8 (Surr)	104		79 - 122					07/12/19 18:08	1
4-Bromofluorobenzene (Surr)	96		78 - 119					07/12/19 18:08	1
Dibromofluoromethane (Surr)	96		70 - 120					07/12/19 18:08	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					07/12/19 18:08	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/15/19 15:26	07/16/19 12:54	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/15/19 15:26	07/16/19 12:54	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		07/15/19 15:26	07/16/19 12:54	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/15/19 15:26	07/16/19 12:54	1
Chrysene	ND		0.10	0.016	ug/L		07/15/19 15:26	07/16/19 12:54	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		07/15/19 15:26	07/16/19 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/15/19 15:26	07/16/19 12:54	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	77		53 - 120				07/15/19 15:26	07/16/19 12:54	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			07/14/19 13:13	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		50 - 150					07/14/19 13:13	1
Trifluorotoluene (Surr)	104		50 - 150					07/14/19 13:13	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Client Sample ID: Trip Blank

Lab Sample ID: 580-87576-2

Date Collected: 07/11/19 00:01

Matrix: Water

Date Received: 07/11/19 11:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/12/19 18:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					07/12/19 18:33	1
Toluene-d8 (Surr)	102		79 - 122					07/12/19 18:33	1
4-Bromofluorobenzene (Surr)	96		78 - 119					07/12/19 18:33	1
Dibromofluoromethane (Surr)	96		70 - 120					07/12/19 18:33	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					07/12/19 18:33	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			07/12/19 15:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		50 - 150					07/12/19 15:07	1
Trifluorotoluene (Surr)	102		50 - 150					07/12/19 15:07	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-305486/7
Matrix: Water
Analysis Batch: 305486

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/12/19 12:42	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123					07/12/19 12:42	1
Toluene-d8 (Surr)	105		79 - 122					07/12/19 12:42	1
4-Bromofluorobenzene (Surr)	90		78 - 119					07/12/19 12:42	1
Dibromofluoromethane (Surr)	91		70 - 120					07/12/19 12:42	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 120					07/12/19 12:42	1

Lab Sample ID: LCS 580-305486/4
Matrix: Water
Analysis Batch: 305486

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.78		ug/L		98	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	101		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	97		78 - 119				
Dibromofluoromethane (Surr)	97		70 - 120				
1,2-Dichloroethane-d4 (Surr)	97		70 - 120				

Lab Sample ID: LCSD 580-305486/5
Matrix: Water
Analysis Batch: 305486

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.2		ug/L		102	65 - 135	4	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	102		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	98		78 - 119						
Dibromofluoromethane (Surr)	97		70 - 120						
1,2-Dichloroethane-d4 (Surr)	97		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-305626/1-A
Matrix: Water
Analysis Batch: 305743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 305626

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/15/19 10:31	07/16/19 11:41	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/15/19 10:31	07/16/19 11:41	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		07/15/19 10:31	07/16/19 11:41	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/15/19 10:31	07/16/19 11:41	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-305626/1-A

Matrix: Water

Analysis Batch: 305743

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 305626

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		07/15/19 10:31	07/16/19 11:41	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		07/15/19 10:31	07/16/19 11:41	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/15/19 10:31	07/16/19 11:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	94		53 - 120				07/15/19 10:31	07/16/19 11:41	1

Lab Sample ID: LCS 580-305626/2-A

Matrix: Water

Analysis Batch: 305743

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 305626

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.35		ug/L		84	61 - 129
Benzo[a]pyrene	4.00	3.50		ug/L		87	56 - 130
Benzo[b]fluoranthene	4.00	3.74		ug/L		93	53 - 133
Benzo[k]fluoranthene	4.00	3.67		ug/L		92	51 - 132
Chrysene	4.00	3.54		ug/L		88	47 - 126
Dibenz(a,h)anthracene	4.00	3.76		ug/L		94	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 135
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	85		53 - 120				

Lab Sample ID: LCSD 580-305626/3-A

Matrix: Water

Analysis Batch: 305743

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 305626

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	3.49		ug/L		87	61 - 129	4	31
Benzo[a]pyrene	4.00	3.54		ug/L		89	56 - 130	1	27
Benzo[b]fluoranthene	4.00	3.87		ug/L		97	53 - 133	4	25
Benzo[k]fluoranthene	4.00	3.62		ug/L		90	51 - 132	1	25
Chrysene	4.00	3.62		ug/L		90	47 - 126	2	23
Dibenz(a,h)anthracene	4.00	3.84		ug/L		96	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.77		ug/L		94	56 - 135	2	24
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	82		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-305457/8

Matrix: Water

Analysis Batch: 305457

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			07/12/19 12:06	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-305457/8

Matrix: Water

Analysis Batch: 305457

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		50 - 150		07/12/19 12:06	1
Trifluorotoluene (Surr)	91		50 - 150		07/12/19 12:06	1

Lab Sample ID: LCS 580-305457/6

Matrix: Water

Analysis Batch: 305457

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	107		50 - 150

Lab Sample ID: LCSD 580-305457/7

Matrix: Water

Analysis Batch: 305457

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		50 - 150
Trifluorotoluene (Surr)	105		50 - 150

Lab Sample ID: MB 580-305585/5

Matrix: Water

Analysis Batch: 305585

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			07/14/19 11:12	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	100		50 - 150		07/14/19 11:12	1
Trifluorotoluene (Surr)	101		50 - 150		07/14/19 11:12	1

Lab Sample ID: LCS 580-305585/6

Matrix: Water

Analysis Batch: 305585

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	103		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-305585/7

Matrix: Water

Analysis Batch: 305585

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.806		mg/L		81	79 - 120	2	10
Surrogate		LCSD %Recovery	LCSD Qualifier						Limits
4-Bromofluorobenzene (Surr)		103							50 - 150
Trifluorotoluene (Surr)		104							50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Client Sample ID: Outfall #002

Lab Sample ID: 580-87576-1

Date Collected: 07/11/19 09:45

Matrix: Water

Date Received: 07/11/19 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	305486	07/12/19 18:08	CJ	TAL SEA
Total/NA	Prep	3510C			305626	07/15/19 15:26	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	305743	07/16/19 12:54	E1L	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	305585	07/14/19 13:13	DCV	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-87576-2

Date Collected: 07/11/19 00:01

Matrix: Water

Date Received: 07/11/19 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	305486	07/12/19 18:33	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	305457	07/12/19 15:07	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87576-2

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

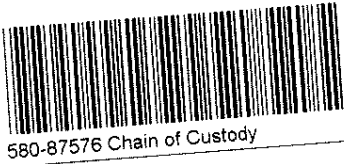
Job ID: 580-87576-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87576-1	Outfall #002	Water	07/11/19 09:45	07/11/19 11:25	
580-87576-2	Trip Blank	Water	07/11/19 00:01	07/11/19 11:25	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: Arcadis Client Contact: Peter Campbell Date: 7/11/2019 Chain of Custody Number: 35637
 Address: 1100 Olive Way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
 City: Seattle State: WA Zip Code: 98101 Sampler: Ryan Brauchle Lab Contact: Elaine Walker Page 1 of 1
 Project Name and Location (State): Edmonds Terminal (WA) Billing Contact: _____ Analysis (Attach list if more space is needed): _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis (Attach list if more space is needed)	Loc: 580 87576 s/ of	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
Outfall #002	7-11-2019	0945		X											pH = 7.44
Trip Blank	-	-		X											
															Run NWTPH-Dx with standard silica gel cleanup (SGC)
															Benzene & cPAHs require quantitative level < 1.0 µg/L



Therm. ID: A2 Cor: 7.7 °C Unc: 8.0 °C
 Cooler Desc: Med blue
 Packing: 6/6 FedEx: _____
 Cust. Seal: Yes No X UPS: _____
 Blue Ice, (Wet, Dry, None) Lab Cour: _____
 Other: Client

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____
 Sample Disposal Disposal By La _____

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____ QC Requirements (Specify) _____

1. Relinquished By Sign/Print <u>Ryan Brauchle</u>	Date <u>7-11-19</u>	Time <u>1125</u>	1. Received By Sign/Print <u>Tom Blankinship</u>	Date <u>7/11/19</u>	Time <u>1125</u>
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-87576-2

Login Number: 87576

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87772-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
8/2/2019 1:40:24 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Job ID: 580-87772-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-87772-1

Receipt

Two samples were received on 7/18/2019 12:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

GC/MS VOA

Method(s) 624.1: Surrogate recovery for the following sample was outside the upper control limit: Trip Blank (580-87772-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch analytical batch 580-307021 recovered outside control limits for the following analytes: Gasoline. Recovery for Gasoline did not recover within the recovery limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-87772-1

Date Collected: 07/18/19 10:00

Matrix: Water

Date Received: 07/18/19 12:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/21/19 23:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	97		74 - 123		07/21/19 23:14	1
Toluene-d8 (Surr)	108		79 - 122		07/21/19 23:14	1
4-Bromofluorobenzene (Surr)	102		78 - 119		07/21/19 23:14	1
Dibromofluoromethane (Surr)	100		70 - 120		07/21/19 23:14	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 120		07/21/19 23:14	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		07/25/19 13:31	07/26/19 13:00	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/25/19 13:31	07/26/19 13:00	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		07/25/19 13:31	07/26/19 13:00	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		07/25/19 13:31	07/26/19 13:00	1
Chrysene	ND		0.10	0.016	ug/L		07/25/19 13:31	07/26/19 13:00	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		07/25/19 13:31	07/26/19 13:00	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		07/25/19 13:31	07/26/19 13:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	67		53 - 120	07/25/19 13:31	07/26/19 13:00	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*	0.25	0.10	mg/L			07/29/19 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150		07/29/19 23:13	1
Trifluorotoluene (Surr)	103		50 - 150		07/29/19 23:13	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		07/31/19 10:17	08/01/19 17:37	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		07/31/19 10:17	08/01/19 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	92		50 - 150	07/31/19 10:17	08/01/19 17:37	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-87772-2

Date Collected: 07/18/19 00:01

Matrix: Water

Date Received: 07/18/19 12:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/21/19 18:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123		07/21/19 18:47	1
Toluene-d8 (Surr)	107		79 - 122		07/21/19 18:47	1
4-Bromofluorobenzene (Surr)	102		78 - 119		07/21/19 18:47	1
Dibromofluoromethane (Surr)	106		70 - 120		07/21/19 18:47	1
1,2-Dichloroethane-d4 (Surr)	121	X	70 - 120		07/21/19 18:47	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			07/28/19 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		07/28/19 21:57	1
Trifluorotoluene (Surr)	93		50 - 150		07/28/19 21:57	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-306210/7
Matrix: Water
Analysis Batch: 306210

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/21/19 16:44	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		74 - 123					07/21/19 16:44	1
Toluene-d8 (Surr)	107		79 - 122					07/21/19 16:44	1
4-Bromofluorobenzene (Surr)	101		78 - 119					07/21/19 16:44	1
Dibromofluoromethane (Surr)	102		70 - 120					07/21/19 16:44	1
1,2-Dichloroethane-d4 (Surr)	117		70 - 120					07/21/19 16:44	1

Lab Sample ID: LCS 580-306210/4
Matrix: Water
Analysis Batch: 306210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.78		ug/L		88	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	99		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	98		78 - 119				
Dibromofluoromethane (Surr)	101		70 - 120				
1,2-Dichloroethane-d4 (Surr)	119		70 - 120				

Lab Sample ID: LCSD 580-306210/5
Matrix: Water
Analysis Batch: 306210

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.55		ug/L		86	65 - 135	3	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	95		74 - 123						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	98		78 - 119						
Dibromofluoromethane (Surr)	98		70 - 120						
1,2-Dichloroethane-d4 (Surr)	120		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-306628/1-A
Matrix: Water
Analysis Batch: 306706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/25/19 13:31	07/26/19 10:18	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/25/19 13:31	07/26/19 10:18	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		07/25/19 13:31	07/26/19 10:18	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/25/19 13:31	07/26/19 10:18	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-306628/1-A
Matrix: Water
Analysis Batch: 306706

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306628

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		07/25/19 13:31	07/26/19 10:18	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		07/25/19 13:31	07/26/19 10:18	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/25/19 13:31	07/26/19 10:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Terphenyl-d14	58		53 - 120			07/25/19 13:31	07/26/19 10:18	1	

Lab Sample ID: LCS 580-306628/2-A
Matrix: Water
Analysis Batch: 306706

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306628

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.33		ug/L		83	61 - 129
Benzo[a]pyrene	4.00	2.97		ug/L		74	56 - 130
Benzo[b]fluoranthene	4.00	3.25		ug/L		81	53 - 133
Benzo[k]fluoranthene	4.00	2.84		ug/L		71	51 - 132
Chrysene	4.00	2.74		ug/L		69	47 - 126
Dibenz(a,h)anthracene	4.00	3.15		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.48		ug/L		87	56 - 135
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	64		53 - 120				

Lab Sample ID: LCSD 580-306628/3-A
Matrix: Water
Analysis Batch: 306706

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306628

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	4.00	3.46		ug/L		86	61 - 129	4	31
Benzo[a]pyrene	4.00	3.04		ug/L		76	56 - 130	3	27
Benzo[b]fluoranthene	4.00	3.39		ug/L		85	53 - 133	4	25
Benzo[k]fluoranthene	4.00	2.84		ug/L		71	51 - 132	0	25
Chrysene	4.00	2.82		ug/L		71	47 - 126	3	23
Dibenz(a,h)anthracene	4.00	3.22		ug/L		80	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.56		ug/L		89	56 - 135	2	24
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	63		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-306857/6
Matrix: Water
Analysis Batch: 306857

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			07/28/19 20:43	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-306857/6
Matrix: Water
Analysis Batch: 306857

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		50 - 150		07/28/19 20:43	1
Trifluorotoluene (Surr)	101		50 - 150		07/28/19 20:43	1

Lab Sample ID: LCS 580-306857/7
Matrix: Water
Analysis Batch: 306857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.928		mg/L		93	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	99		50 - 150

Lab Sample ID: LCSD 580-306857/8
Matrix: Water
Analysis Batch: 306857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.896		mg/L		90	79 - 120	3	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		50 - 150
Trifluorotoluene (Surr)	101		50 - 150

Lab Sample ID: MB 580-307021/5
Matrix: Water
Analysis Batch: 307021

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			07/29/19 20:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		07/29/19 20:22	1
Trifluorotoluene (Surr)	61		50 - 150		07/29/19 20:22	1

Lab Sample ID: LCS 580-307021/6
Matrix: Water
Analysis Batch: 307021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.996		mg/L		100	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	100		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-307021/7
Matrix: Water
Analysis Batch: 307021

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.880	*	mg/L		88	79 - 120	12	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	87		50 - 150						
Trifluorotoluene (Surr)	90		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-307136/1-B
Matrix: Water
Analysis Batch: 307278

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		07/31/19 10:17	08/01/19 15:45	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		07/31/19 10:17	08/01/19 15:45	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150				07/31/19 10:17	08/01/19 15:45	1

Lab Sample ID: LCS 580-307136/2-B
Matrix: Water
Analysis Batch: 307278

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2.00	1.64		mg/L		82	50 - 120		
Motor Oil (>C24-C36)	2.00	2.00		mg/L		100	64 - 120		
Surrogate	%Recovery	LCS Qualifier	Limits						
o-Terphenyl	93		50 - 150						

Lab Sample ID: LCSD 580-307136/3-B
Matrix: Water
Analysis Batch: 307278

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307136

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.44		mg/L		72	50 - 120	13	26
Motor Oil (>C24-C36)	2.00	1.87		mg/L		94	64 - 120	7	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	83		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Client Sample ID: Outfall #002

Date Collected: 07/18/19 10:00

Date Received: 07/18/19 12:15

Lab Sample ID: 580-87772-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	306210	07/21/19 23:14	CJ	TAL SEA
Total/NA	Prep	3510C			306628	07/25/19 13:31	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	306706	07/26/19 13:00	KFS	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	307021	07/29/19 23:13	DCV	TAL SEA
Total/NA	Prep	3510C			307136	07/31/19 10:17	PRO	TAL SEA
Total/NA	Cleanup	3630C			307252	08/01/19 11:08	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	307278	08/01/19 17:37	TL1	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 07/18/19 00:01

Date Received: 07/18/19 12:15

Lab Sample ID: 580-87772-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	306210	07/21/19 18:47	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	306857	07/28/19 21:57	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State		2901	11-05-19
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P330-14-00126	02-10-20
USDA	US Federal Programs		P330-17-00039	02-10-20
Washington	State		C553	02-17-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87772-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87772-1	Outfall #002	Water	07/18/19 10:00	07/18/19 12:15	
580-87772-2	Trip Blank	Water	07/18/19 00:01	07/18/19 12:15	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-87772-1

Login Number: 87772

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-87960-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
8/8/2019 2:22:56 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Job ID: 580-87960-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-87960-1

Receipt

Two samples were received on 7/26/2019 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.7° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The Diesel Range Organics (DRO) concentration reported for the following sample is due to the presence of discrete peaks: Outfall #002 (580-87960-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-87960-1

Date Collected: 07/25/19 11:30

Matrix: Water

Date Received: 07/26/19 12:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/30/19 18:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123		07/30/19 18:47	1
Toluene-d8 (Surr)	104		79 - 122		07/30/19 18:47	1
4-Bromofluorobenzene (Surr)	88		78 - 119		07/30/19 18:47	1
Dibromofluoromethane (Surr)	98		70 - 120		07/30/19 18:47	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		07/30/19 18:47	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		07/30/19 15:35	08/01/19 19:09	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/30/19 15:35	08/01/19 19:09	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		07/30/19 15:35	08/01/19 19:09	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		07/30/19 15:35	08/01/19 19:09	1
Chrysene	ND		0.10	0.016	ug/L		07/30/19 15:35	08/01/19 19:09	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		07/30/19 15:35	08/01/19 19:09	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		07/30/19 15:35	08/01/19 19:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		53 - 120	07/30/19 15:35	08/01/19 19:09	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/04/19 19:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		50 - 150		08/04/19 19:00	1
Trifluorotoluene (Surr)	80		50 - 150		08/04/19 19:00	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.066	J	0.11	0.066	mg/L		07/31/19 14:53	08/01/19 23:16	1
Motor Oil (>C24-C36)	0.11	J	0.36	0.098	mg/L		07/31/19 14:53	08/01/19 23:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	91		50 - 150	07/31/19 14:53	08/01/19 23:16	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-87960-2

Date Collected: 07/25/19 00:01

Matrix: Water

Date Received: 07/26/19 12:30

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/30/19 15:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123		07/30/19 15:01	1
Toluene-d8 (Surr)	102		79 - 122		07/30/19 15:01	1
4-Bromofluorobenzene (Surr)	89		78 - 119		07/30/19 15:01	1
Dibromofluoromethane (Surr)	97		70 - 120		07/30/19 15:01	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		07/30/19 15:01	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/04/19 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150		08/04/19 19:25	1
Trifluorotoluene (Surr)	95		50 - 150		08/04/19 19:25	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-307038/7
Matrix: Water
Analysis Batch: 307038

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			07/30/19 14:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123					07/30/19 14:11	1
Toluene-d8 (Surr)	102		79 - 122					07/30/19 14:11	1
4-Bromofluorobenzene (Surr)	89		78 - 119					07/30/19 14:11	1
Dibromofluoromethane (Surr)	99		70 - 120					07/30/19 14:11	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					07/30/19 14:11	1

Lab Sample ID: LCS 580-307038/4
Matrix: Water
Analysis Batch: 307038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.1		ug/L		101	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	103		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	93		78 - 119				
Dibromofluoromethane (Surr)	101		70 - 120				
1,2-Dichloroethane-d4 (Surr)	97		70 - 120				

Lab Sample ID: LCSD 580-307038/5
Matrix: Water
Analysis Batch: 307038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.60		ug/L		96	65 - 135	5	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	103		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 119						
Dibromofluoromethane (Surr)	99		70 - 120						
1,2-Dichloroethane-d4 (Surr)	98		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-307074/1-A
Matrix: Water
Analysis Batch: 307230

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/30/19 15:35	08/01/19 13:47	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/30/19 15:35	08/01/19 13:47	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		07/30/19 15:35	08/01/19 13:47	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/30/19 15:35	08/01/19 13:47	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-307074/1-A
Matrix: Water
Analysis Batch: 307230

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		07/30/19 15:35	08/01/19 13:47	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		07/30/19 15:35	08/01/19 13:47	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/30/19 15:35	08/01/19 13:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		53 - 120				07/30/19 15:35	08/01/19 13:47	1

Lab Sample ID: LCS 580-307074/2-A
Matrix: Water
Analysis Batch: 307230

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307074

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.60		ug/L		90	61 - 129
Benzo[a]pyrene	4.00	3.49		ug/L		87	56 - 130
Benzo[b]fluoranthene	4.00	3.72		ug/L		93	53 - 133
Benzo[k]fluoranthene	4.00	4.03		ug/L		101	51 - 132
Chrysene	4.00	3.59		ug/L		90	47 - 126
Dibenz(a,h)anthracene	4.00	3.69		ug/L		92	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.67		ug/L		92	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	85		53 - 120				

Lab Sample ID: LCSD 580-307074/3-A
Matrix: Water
Analysis Batch: 307230

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307074

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.51		ug/L		88	61 - 129	3	31
Benzo[a]pyrene	4.00	3.65		ug/L		91	56 - 130	5	27
Benzo[b]fluoranthene	4.00	3.79		ug/L		95	53 - 133	2	25
Benzo[k]fluoranthene	4.00	3.99		ug/L		100	51 - 132	1	25
Chrysene	4.00	3.70		ug/L		93	47 - 126	3	23
Dibenz(a,h)anthracene	4.00	3.77		ug/L		94	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.75		ug/L		94	56 - 135	2	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	82		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-307445/6
Matrix: Water
Analysis Batch: 307445

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/04/19 12:41	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-307445/6
Matrix: Water
Analysis Batch: 307445

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		50 - 150		08/04/19 12:41	1
Trifluorotoluene (Surr)	99		50 - 150		08/04/19 12:41	1

Lab Sample ID: LCS 580-307445/9
Matrix: Water
Analysis Batch: 307445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: LCSD 580-307445/8
Matrix: Water
Analysis Batch: 307445

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	99		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-307188/1-B
Matrix: Water
Analysis Batch: 307280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307188

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		07/31/19 14:53	08/01/19 22:09	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		07/31/19 14:53	08/01/19 22:09	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	85		50 - 150	07/31/19 14:53	08/01/19 22:09	1

Lab Sample ID: LCS 580-307188/2-B
Matrix: Water
Analysis Batch: 307280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	2.01		mg/L		101	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-307188/2-B
Matrix: Water
Analysis Batch: 307280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307188

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	98		50 - 150

Lab Sample ID: LCSD 580-307188/3-B
Matrix: Water
Analysis Batch: 307280

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307188

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	Limit	Limit
#2 Diesel (C10-C24)	2.00	1.45		mg/L		72	50 - 120	5	26	
Motor Oil (>C24-C36)	2.00	1.97		mg/L		98	64 - 120	2	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	92		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-87960-1

Date Collected: 07/25/19 11:30

Matrix: Water

Date Received: 07/26/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	307038	07/30/19 18:47	CJ	TAL SEA
Total/NA	Prep	3510C			307074	07/30/19 15:35	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	307230	08/01/19 19:09	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	307445	08/04/19 19:00	DCV	TAL SEA
Total/NA	Prep	3510C			307188	07/31/19 14:53	PRO	TAL SEA
Total/NA	Cleanup	3630C			307260	08/01/19 12:06	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	307280	08/01/19 23:16	TL1	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-87960-2

Date Collected: 07/25/19 00:01

Matrix: Water

Date Received: 07/26/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	307038	07/30/19 15:01	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	307445	08/04/19 19:25	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State		2901	11-05-19
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P330-14-00126	02-10-20
USDA	US Federal Programs		P330-17-00039	02-10-20
Washington	State		C553	02-17-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-87960-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87960-1	Outfall #002	Water	07/25/19 11:30	07/26/19 12:30	
580-87960-2	Trip Blank	Water	07/25/19 00:01	07/26/19 12:30	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-87960-1

Login Number: 87960

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88106-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
8/19/2019 5:02:36 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Job ID: 580-88106-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88106-1

Receipt

Two samples were received on 8/2/2019 12:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

Receipt Exceptions

The following sample was activated for pH analysis by the client on 8/6/2019, however, there is not additional unpreserved volume for this test. The client has asked that we run the PAHs and if unpreserved volume is remaining then run the pH analysis. : OUTFALL #002 (580-88106-1).

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The method blank for preparation batch 580-307985 and 580-308014 and analytical batch 580-308017 contained motor oil above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction of samples and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Presley, Kim

From: Encelle, Ophelie <Ophelie.Encelle@arcadis.com>
Sent: Tuesday, August 06, 2019 1:40 PM
To: Walker, M Elaine; Presley, Kim
Cc: Miles, Samuel; Campbell, Peter; Zaubi, Kiley
Subject: RE: Courier request for NPDES sample

-External Email-

Hi Elaine,

Let's do the following:

1. Do the PAHs analysis
2. Save the remaining water for potential PAHs re-work or pH until we have the PAHs results confirmed
3. If PAHs are final and confirmed and don't need rework, analyze the pH (we do know we will be out of hold)

Let me know if that works for you,

Thanks

Ophélie

From: Walker, M Elaine <M.Elaine.Walker@testamericainc.com>
Sent: Saturday, August 3, 2019 5:04 PM
To: Encelle, Ophelie <Ophelie.Encelle@arcadis.com>; Zaubi, Kiley <Kiley.Zaubi@arcadis.com>; Presley, Kim <Kim.Presley@testamericainc.com>
Cc: Dunne, Sam <Sam.Dunne@arcadis.com>
Subject: RE: Courier request for NPDES sample

Hi Ophie,

I was just doing the login review for this sample. There is no unpreserved poly. We do have two 250mL unpreserved for the PAHs. One will be consumed in extraction. We could take some from the second unpreserved amber but there would be reduced volume if the PAHs needed re-work.

Do you want us to do that?

Thanks,

M. Elaine Walker

Phone: 253-248-4972

E-mail: M.Elaine.Walker@testamericainc.com

From: Encelle, Ophelie [<mailto:Ophelie.Encelle@arcadis.com>]
Sent: Friday, August 02, 2019 9:21 AM
To: Zaubi, Kiley; Presley, Kim; Walker, M Elaine
Cc: Dunne, Sam
Subject: RE: Courier request for NPDES sample

-External Email-

Hi Kim and Elaine,

Can you please also add pH to this set of analysis?

Thanks

Oph

From: Zaubi, Kiley <Kiley.Zaubi@arcadis.com>

Sent: Friday, August 2, 2019 9:18 AM

To: Presley, Kim <Kim.Presley@testamericainc.com>; Walker, M Elaine <M.Elaine.Walker@testamericainc.com>

Cc: Encelle, Ophelie <Ophelie.Encelle@arcadis.com>; Dunne, Sam <Sam.Dunne@arcadis.com>

Subject: Re: Courier request for NPDES sample

Hi Kim,

Sam Dune will be passing over the samples today since I'm not in the office. Their number is 9477774721.

Thank you,

Kiley

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From: Zaubi, Kiley

Sent: Thursday, August 1, 2019 2:02:21 PM

To: Presley, Kim <Kim.Presley@testamericainc.com>; Walker, M Elaine <M.Elaine.Walker@testamericainc.com>

Cc: Encelle, Ophelie <Ophelie.Encelle@arcadis.com>

Subject: Re: Courier request for NPDES sample

Kim,

Great, thank you so much.

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From: Presley, Kim <Kim.Presley@testamericainc.com>

Sent: Thursday, August 1, 2019 1:18:36 PM

To: Zaubi, Kiley <Kiley.Zaubi@arcadis.com>; Walker, M Elaine <M.Elaine.Walker@testamericainc.com>

Cc: Encelle, Ophelie <Ophelie.Encelle@arcadis.com>

Subject: RE: Courier request for NPDES sample

Kiley,

I will put you down for a pickup tomorrow.

Kim Presley

Phone: 253-922-2310

E-mail: kim.presley@testamericainc.com

From: Zaubi, Kiley [<mailto:Kiley.Zaubi@arcadis.com>]
Sent: Thursday, August 01, 2019 1:11 PM
To: Presley, Kim; Walker, M Elaine
Cc: Encelle, Ophelie
Subject: Courier request for NPDES sample

-External Email-

Good afternoon Kim and Elaine,

Would you have a courier available tomorrow to pick up a set of NPDES samples from the Arcadis Seattle office? I'll be gathering the samples today but they will not be available for pick up until tomorrow morning.

I appreciate your time,

Kiley Zaubi
760-716-2215

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Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Client Sample ID: OUTFALL #002

Lab Sample ID: 580-88106-1

Date Collected: 08/01/19 13:40

Matrix: Water

Date Received: 08/02/19 12:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/05/19 23:59	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					08/05/19 23:59	1
Toluene-d8 (Surr)	103		79 - 122					08/05/19 23:59	1
4-Bromofluorobenzene (Surr)	93		78 - 119					08/05/19 23:59	1
Dibromofluoromethane (Surr)	100		70 - 120					08/05/19 23:59	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					08/05/19 23:59	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		08/06/19 10:16	08/07/19 13:57	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		08/06/19 10:16	08/07/19 13:57	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		08/06/19 10:16	08/07/19 13:57	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		08/06/19 10:16	08/07/19 13:57	1
Chrysene	ND		0.10	0.016	ug/L		08/06/19 10:16	08/07/19 13:57	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		08/06/19 10:16	08/07/19 13:57	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		08/06/19 10:16	08/07/19 13:57	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		53 - 120				08/06/19 10:16	08/07/19 13:57	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/11/19 16:01	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150					08/11/19 16:01	1
Trifluorotoluene (Surr)	103		50 - 150					08/11/19 16:01	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		08/09/19 13:07	08/10/19 16:18	1
Motor Oil (>C24-C36)	0.12	J B	0.36	0.098	mg/L		08/09/19 13:07	08/10/19 16:18	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150				08/09/19 13:07	08/10/19 16:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.9	HF			SU			08/16/19 13:01	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88106-2

Date Collected: 08/01/19 00:01

Matrix: Water

Date Received: 08/02/19 12:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/05/19 19:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123		08/05/19 19:01	1
Toluene-d8 (Surr)	103		79 - 122		08/05/19 19:01	1
4-Bromofluorobenzene (Surr)	89		78 - 119		08/05/19 19:01	1
Dibromofluoromethane (Surr)	99		70 - 120		08/05/19 19:01	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		08/05/19 19:01	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/08/19 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		08/08/19 17:53	1
Trifluorotoluene (Surr)	107		50 - 150		08/08/19 17:53	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-307539/7
Matrix: Water
Analysis Batch: 307539

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/05/19 18:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					08/05/19 18:11	1
Toluene-d8 (Surr)	104		79 - 122					08/05/19 18:11	1
4-Bromofluorobenzene (Surr)	90		78 - 119					08/05/19 18:11	1
Dibromofluoromethane (Surr)	98		70 - 120					08/05/19 18:11	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					08/05/19 18:11	1

Lab Sample ID: LCS 580-307539/4
Matrix: Water
Analysis Batch: 307539

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.34		ug/L		93	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	101		74 - 123				
Toluene-d8 (Surr)	100		79 - 122				
4-Bromofluorobenzene (Surr)	92		78 - 119				
Dibromofluoromethane (Surr)	101		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-307539/5
Matrix: Water
Analysis Batch: 307539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.1		ug/L		101	65 - 135	7	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	102		74 - 123						
Toluene-d8 (Surr)	108		79 - 122						
4-Bromofluorobenzene (Surr)	98		78 - 119						
Dibromofluoromethane (Surr)	101		70 - 120						
1,2-Dichloroethane-d4 (Surr)	97		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-307607/1-A
Matrix: Water
Analysis Batch: 307715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		08/06/19 10:16	08/07/19 10:17	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		08/06/19 10:16	08/07/19 10:17	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		08/06/19 10:16	08/07/19 10:17	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		08/06/19 10:16	08/07/19 10:17	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-307607/1-A
Matrix: Water
Analysis Batch: 307715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307607

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		08/06/19 10:16	08/07/19 10:17	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		08/06/19 10:16	08/07/19 10:17	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		08/06/19 10:16	08/07/19 10:17	1
Surrogate									
	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Terphenyl-d14	87		53 - 120				08/06/19 10:16	08/07/19 10:17	1

Lab Sample ID: LCS 580-307607/2-A
Matrix: Water
Analysis Batch: 307715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307607

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.44		ug/L		86	61 - 129
Benzo[a]pyrene	4.00	3.06		ug/L		76	56 - 130
Benzo[b]fluoranthene	4.00	3.37		ug/L		84	53 - 133
Benzo[k]fluoranthene	4.00	3.60		ug/L		90	51 - 132
Chrysene	4.00	3.49		ug/L		87	47 - 126
Dibenz(a,h)anthracene	4.00	3.63		ug/L		91	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.60		ug/L		90	56 - 135
Surrogate							
	LCS	LCS	Limits				
	%Recovery	Qualifier					
Terphenyl-d14	87		53 - 120				

Lab Sample ID: LCSD 580-307607/3-A
Matrix: Water
Analysis Batch: 307715

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307607

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	4.00	3.61		ug/L		90	61 - 129	5	31
Benzo[a]pyrene	4.00	3.32		ug/L		83	56 - 130	8	27
Benzo[b]fluoranthene	4.00	3.56		ug/L		89	53 - 133	6	25
Benzo[k]fluoranthene	4.00	3.86		ug/L		97	51 - 132	7	25
Chrysene	4.00	3.62		ug/L		91	47 - 126	4	23
Dibenz(a,h)anthracene	4.00	3.94		ug/L		99	60 - 133	8	25
Indeno[1,2,3-cd]pyrene	4.00	3.89		ug/L		97	56 - 135	8	24
Surrogate									
	LCSD	LCSD	Limits						
	%Recovery	Qualifier							
Terphenyl-d14	93		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-307916/8
Matrix: Water
Analysis Batch: 307916

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			08/08/19 15:11	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-307916/8
Matrix: Water
Analysis Batch: 307916

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	95		50 - 150		08/08/19 15:11	1
Trifluorotoluene (Surr)	111		50 - 150		08/08/19 15:11	1

Lab Sample ID: LCS 580-307916/9
Matrix: Water
Analysis Batch: 307916

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	98		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: LCSD 580-307916/10
Matrix: Water
Analysis Batch: 307916

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: MB 580-308054/6
Matrix: Water
Analysis Batch: 308054

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			08/11/19 12:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		50 - 150		08/11/19 12:28	1
Trifluorotoluene (Surr)	109		50 - 150		08/11/19 12:28	1

Lab Sample ID: LCS 580-308054/7
Matrix: Water
Analysis Batch: 308054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	99		50 - 150
Trifluorotoluene (Surr)	105		50 - 150

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-308054/8
Matrix: Water
Analysis Batch: 308054

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.898		mg/L		90	79 - 120	2	10
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		50 - 150						
Trifluorotoluene (Surr)	106		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-307985/1-B
Matrix: Water
Analysis Batch: 308017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307985

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/09/19 13:07	08/10/19 14:01	1
Motor Oil (>C24-C36)	0.0981	J	0.35	0.096	mg/L		08/09/19 13:07	08/10/19 14:01	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	91		50 - 150				08/09/19 13:07	08/10/19 14:01	1

Lab Sample ID: LCS 580-307985/2-B
Matrix: Water
Analysis Batch: 308017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307985

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.77		mg/L		88	50 - 120
Motor Oil (>C24-C36)	2.00	2.13		mg/L		106	64 - 120
Surrogate							
	%Recovery	LCS Qualifier	Limits				
o-Terphenyl	112		50 - 150				

Lab Sample ID: LCSD 580-307985/3-B
Matrix: Water
Analysis Batch: 308017

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307985

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120	12	26
Motor Oil (>C24-C36)	2.00	2.04		mg/L		102	64 - 120	4	24
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	98		50 - 150						

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Method: 9040B - pH

Lab Sample ID: 580-88106-1 DU
Matrix: Water
Analysis Batch: 308597

Client Sample ID: OUTFALL #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.9	HF	8.0		SU		0.1	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Client Sample ID: OUTFALL #002

Lab Sample ID: 580-88106-1

Date Collected: 08/01/19 13:40

Matrix: Water

Date Received: 08/02/19 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	307539	08/05/19 23:59	T1W	TAL SEA
Total/NA	Prep	3510C			307607	08/06/19 10:16	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	307715	08/07/19 13:57	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	308054	08/11/19 16:01	JSM	TAL SEA
Total/NA	Prep	3510C			307985	08/09/19 13:07	N1C	TAL SEA
Total/NA	Cleanup	3630C			308014	08/09/19 19:03	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308017	08/10/19 16:18	TL1	TAL SEA
Total/NA	Analysis	9040B		1	308597	08/16/19 13:01	ESB	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88106-2

Date Collected: 08/01/19 00:01

Matrix: Water

Date Received: 08/02/19 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	307539	08/05/19 19:01	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	307916	08/08/19 17:53	JSM	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State		17-024	01-19-22
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State		2901	11-05-19
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P330-14-00126	02-10-20
USDA	US Federal Programs		P330-17-00039	02-10-20
Washington	State		C553	02-17-20
Washington	State Program	10	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88106-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88106-1	OUTFALL #002	Water	08/01/19 13:40	08/02/19 12:20	
580-88106-2	Trip Blank	Water	08/01/19 00:01	08/02/19 12:20	

1

2

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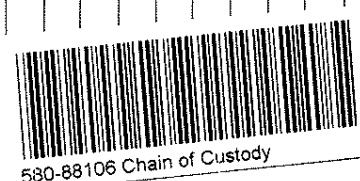
10

11

Client Arcadis	Client Contact Ophélie Encelle	Date 8/1/2019	Chain of Custody Number 35252
Address 1100 Olive Way, Suite 800	Telephone Number (Area Code)/Fax Number	Lab Number 86722	Page _____ of _____

City Seattle	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Project Name and Location (State) Edmonds Terminal			Billing Contact			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt			
			Air	Aqueous	Sed.	Soil	Unpres.	#2504	HN03	HCl	NaOH	ZnAc/ NaOH				
Outfall #002	8/1/2019	1340		X			2			8						pH = *Use standard SGC *Benzene and cPAHs with quantitative level less than 1ug/L
TRIP Blank	—	—		X						6						



Cooler <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
---------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other STAT	QC Requirements (Specify)
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print Samantha Dume	Date 8/2/19	Time 1220	1. Received By Sign/Print B. Gell	Date 8.2.19	Time 1220
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Therm. ID: **A2** Cor: **0.7** Unc: **1.0**

Cooler Dsc: **SMI BNC**

Packing: **Double** FedEx: _____

Cust. Seal: Yes No UPS: _____

Blue Ice: Dry, None Other: **X** Lab Cour: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88106-1

Login Number: 88106

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88269-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
8/20/2019 4:56:02 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Job ID: 580-88269-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88269-1

Receipt

Three samples were received on 8/9/2019 1:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Outfall #002 (580-88269-1) and DUP-1 (580-88269-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88269-1

Date Collected: 08/08/19 18:30

Matrix: Water

Date Received: 08/09/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/13/19 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123		08/13/19 20:42	1
Toluene-d8 (Surr)	105		79 - 122		08/13/19 20:42	1
4-Bromofluorobenzene (Surr)	90		78 - 119		08/13/19 20:42	1
Dibromofluoromethane (Surr)	100		70 - 120		08/13/19 20:42	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120		08/13/19 20:42	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.014	ug/L		08/13/19 09:49	08/16/19 10:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		08/13/19 09:49	08/16/19 10:26	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		08/13/19 09:49	08/16/19 10:26	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		08/13/19 09:49	08/16/19 10:26	1
Chrysene	ND		0.10	0.016	ug/L		08/13/19 09:49	08/16/19 10:26	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		08/13/19 09:49	08/16/19 10:26	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.014	ug/L		08/13/19 09:49	08/16/19 10:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	57		53 - 120	08/13/19 09:49	08/16/19 10:26	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/16/19 19:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		08/16/19 19:02	1
Trifluorotoluene (Surr)	114		50 - 150		08/16/19 19:02	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.074	J	0.11	0.067	mg/L		08/14/19 10:13	08/15/19 17:57	1
Motor Oil (>C24-C36)	0.14	J	0.36	0.099	mg/L		08/14/19 10:13	08/15/19 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	108		50 - 150	08/14/19 10:13	08/15/19 17:57	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Client Sample ID: DUP-1
Date Collected: 08/08/19 00:01
Date Received: 08/09/19 13:20

Lab Sample ID: 580-88269-2
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/13/19 21:07	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123					08/13/19 21:07	1
Toluene-d8 (Surr)	104		79 - 122					08/13/19 21:07	1
4-Bromofluorobenzene (Surr)	89		78 - 119					08/13/19 21:07	1
Dibromofluoromethane (Surr)	103		70 - 120					08/13/19 21:07	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					08/13/19 21:07	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		08/13/19 09:49	08/14/19 13:32	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		08/13/19 09:49	08/14/19 13:32	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		08/13/19 09:49	08/14/19 13:32	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		08/13/19 09:49	08/14/19 13:32	1
Chrysene	ND		0.10	0.017	ug/L		08/13/19 09:49	08/14/19 13:32	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		08/13/19 09:49	08/14/19 13:32	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		08/13/19 09:49	08/14/19 13:32	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	56		53 - 120				08/13/19 09:49	08/14/19 13:32	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/16/19 19:33	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150					08/16/19 19:33	1
Trifluorotoluene (Surr)	113		50 - 150					08/16/19 19:33	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.068	J	0.11	0.066	mg/L		08/14/19 10:13	08/15/19 18:19	1
Motor Oil (>C24-C36)	0.14	J	0.36	0.098	mg/L		08/14/19 10:13	08/15/19 18:19	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	113		50 - 150				08/14/19 10:13	08/15/19 18:19	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88269-3

Date Collected: 08/08/19 00:01

Matrix: Water

Date Received: 08/09/19 13:20

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/13/19 21:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123		08/13/19 21:32	1
Toluene-d8 (Surr)	104		79 - 122		08/13/19 21:32	1
4-Bromofluorobenzene (Surr)	91		78 - 119		08/13/19 21:32	1
Dibromofluoromethane (Surr)	102		70 - 120		08/13/19 21:32	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		08/13/19 21:32	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/16/19 12:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		50 - 150		08/16/19 12:58	1
Trifluorotoluene (Surr)	117		50 - 150		08/16/19 12:58	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-308267/7
Matrix: Water
Analysis Batch: 308267

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/13/19 19:52	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123					08/13/19 19:52	1
Toluene-d8 (Surr)	104		79 - 122					08/13/19 19:52	1
4-Bromofluorobenzene (Surr)	90		78 - 119					08/13/19 19:52	1
Dibromofluoromethane (Surr)	100		70 - 120					08/13/19 19:52	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					08/13/19 19:52	1

Lab Sample ID: LCS 580-308267/4
Matrix: Water
Analysis Batch: 308267

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.8		ug/L		108	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	101		74 - 123				
Toluene-d8 (Surr)	105		79 - 122				
4-Bromofluorobenzene (Surr)	96		78 - 119				
Dibromofluoromethane (Surr)	100		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-308267/5
Matrix: Water
Analysis Batch: 308267

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.6		ug/L		106	65 - 135	3	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	105		74 - 123						
Toluene-d8 (Surr)	106		79 - 122						
4-Bromofluorobenzene (Surr)	96		78 - 119						
Dibromofluoromethane (Surr)	99		70 - 120						
1,2-Dichloroethane-d4 (Surr)	96		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-308198/1-A
Matrix: Water
Analysis Batch: 308522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308198

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		08/13/19 09:49	08/16/19 10:00	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		08/13/19 09:49	08/16/19 10:00	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		08/13/19 09:49	08/16/19 10:00	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		08/13/19 09:49	08/16/19 10:00	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-308198/1-A
Matrix: Water
Analysis Batch: 308522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308198

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		08/13/19 09:49	08/16/19 10:00	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		08/13/19 09:49	08/16/19 10:00	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		08/13/19 09:49	08/16/19 10:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	59		53 - 120	08/13/19 09:49	08/16/19 10:00	1

Lab Sample ID: LCS 580-308198/2-A
Matrix: Water
Analysis Batch: 308312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308198

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.56		ug/L		89	61 - 129
Benzo[a]pyrene	4.00	3.34		ug/L		84	56 - 130
Benzo[b]fluoranthene	4.00	3.38		ug/L		85	53 - 133
Benzo[k]fluoranthene	4.00	2.84		ug/L		71	51 - 132
Chrysene	4.00	2.80		ug/L		70	47 - 126
Dibenz(a,h)anthracene	4.00	3.16		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.58		ug/L		89	56 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	54		53 - 120

Lab Sample ID: LCSD 580-308198/3-A
Matrix: Water
Analysis Batch: 308312

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308198

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.64		ug/L		91	61 - 129	2	31
Benzo[a]pyrene	4.00	3.37		ug/L		84	56 - 130	1	27
Benzo[b]fluoranthene	4.00	3.48		ug/L		87	53 - 133	3	25
Benzo[k]fluoranthene	4.00	2.90		ug/L		73	51 - 132	2	25
Chrysene	4.00	2.82		ug/L		71	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	3.21		ug/L		80	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 135	4	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	57		53 - 120

Lab Sample ID: LLCS 580-308198/4-A
Matrix: Water
Analysis Batch: 308312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308198

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	0.160	0.134		ug/L		84	61 - 129
Benzo[a]pyrene	0.160	0.113		ug/L		70	56 - 130
Benzo[b]fluoranthene	0.160	0.126		ug/L		79	53 - 133
Benzo[k]fluoranthene	0.160	0.130		ug/L		81	51 - 132

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LLCS 580-308198/4-A
Matrix: Water
Analysis Batch: 308312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308198

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	0.160	0.128		ug/L		80	47 - 126
Dibenz(a,h)anthracene	0.160	0.126		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	0.160	0.141		ug/L		88	56 - 135
LLCS LLCS							
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	56		53 - 120				

Lab Sample ID: LLCSD 580-308198/5-A
Matrix: Water
Analysis Batch: 308312

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308198

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzo[a]anthracene	0.160	0.137		ug/L		86	61 - 129	2	
Benzo[a]pyrene	0.160	0.119		ug/L		75	56 - 130	6	
Benzo[b]fluoranthene	0.160	0.123		ug/L		77	53 - 133	2	
Benzo[k]fluoranthene	0.160	0.137		ug/L		86	51 - 132	6	
Chrysene	0.160	0.133		ug/L		83	47 - 126	4	
Dibenz(a,h)anthracene	0.160	0.128		ug/L		80	60 - 133	1	
Indeno[1,2,3-cd]pyrene	0.160	0.143		ug/L		89	56 - 135	1	
LLCSD LLCSD									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	55		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-308586/7
Matrix: Water
Analysis Batch: 308586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/16/19 11:27	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	94		50 - 150				08/16/19 11:27	1	
Trifluorotoluene (Surr)	119		50 - 150				08/16/19 11:27	1	

Lab Sample ID: LCS 580-308586/8
Matrix: Water
Analysis Batch: 308586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.879		mg/L		88	79 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		50 - 150				
Trifluorotoluene (Surr)	108		50 - 150				

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-308586/9
Matrix: Water
Analysis Batch: 308586

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.894		mg/L		89	79 - 120	2	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	102		50 - 150						
Trifluorotoluene (Surr)	106		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-308318/1-B
Matrix: Water
Analysis Batch: 308452

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 308318

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/14/19 10:12	08/15/19 13:33	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		08/14/19 10:12	08/15/19 13:33	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	93		50 - 150				08/14/19 10:12	08/15/19 13:33	1

Lab Sample ID: LCS 580-308318/2-B
Matrix: Water
Analysis Batch: 308452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 308318

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2.00	1.52		mg/L		76	50 - 120		
Motor Oil (>C24-C36)	2.00	2.21		mg/L		111	64 - 120		
Surrogate	%Recovery	LCS Qualifier	Limits						
o-Terphenyl	112		50 - 150						

Lab Sample ID: LCSD 580-308318/3-B
Matrix: Water
Analysis Batch: 308452

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308318

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.51		mg/L		75	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.04		mg/L		102	64 - 120	8	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	94		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88269-1

Date Collected: 08/08/19 18:30

Matrix: Water

Date Received: 08/09/19 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	308267	08/13/19 20:42	TL1	TAL SEA
Total/NA	Prep	3510C			308198	08/13/19 09:49	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	308522	08/16/19 10:26	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	308586	08/16/19 19:02	DCV	TAL SEA
Total/NA	Prep	3510C			308318	08/14/19 10:13	PRO	TAL SEA
Total/NA	Cleanup	3630C			308395	08/14/19 17:16	T1L	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308452	08/15/19 17:57	T1W	TAL SEA

Client Sample ID: DUP-1

Lab Sample ID: 580-88269-2

Date Collected: 08/08/19 00:01

Matrix: Water

Date Received: 08/09/19 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	308267	08/13/19 21:07	TL1	TAL SEA
Total/NA	Prep	3510C			308198	08/13/19 09:49	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	308312	08/14/19 13:32	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	308586	08/16/19 19:33	DCV	TAL SEA
Total/NA	Prep	3510C			308318	08/14/19 10:13	PRO	TAL SEA
Total/NA	Cleanup	3630C			308395	08/14/19 17:16	T1L	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	308452	08/15/19 18:19	T1W	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88269-3

Date Collected: 08/08/19 00:01

Matrix: Water

Date Received: 08/09/19 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	308267	08/13/19 21:32	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	308586	08/16/19 12:58	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88269-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88269-1	Outfall #002	Water	08/08/19 18:30	08/09/19 13:20	
580-88269-2	DUP-1	Water	08/08/19 00:01	08/09/19 13:20	
580-88269-3	Trip Blank	Water	08/08/19 00:01	08/09/19 13:20	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88269-1

Login Number: 88269

List Number: 1

Creator: Gall, Brandon A

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88417-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
8/30/2019 3:43:50 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Job ID: 580-88417-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88417-1

Comments

No additional comments.

Receipt

The samples were received on 8/15/2019 11:24 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.6° C.

GC/MS VOA

Method(s) 624.1: Surrogate recovery for the following sample was outside the upper control limit: Trip Blank (580-88417-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM, 8270D SIM: Terphenyl-d14 surrogate recovery for the blank associated with preparation batch 580-309076 and analytical batch 580-309578 was outside lower control limits. The associated samples and LCS/LCSD pair were within acceptance criteria for this surrogate, therefore the data is qualified and reported.

Method(s) 8270C SIM: The following MSD evaporated during the extraction process: Outfall #002 (580-88417-1[MSD]), therefore the spike and surrogate recoveries are not within control limits. The MS recovers within criteria for all target analytes. Matrix interference causes the parent sample and MS to have surrogate recoveries outside of control limits. However, the LCS/LCSD pair are within control limits for all target recoveries and surrogates.

Since the LCS/LCSD and the associated MS are within acceptance criteria, the extraction is considered effective and the data is qualified and reported.

Method(s) 8270C SIM: Surrogate recovery for the following samples were outside control limits: Outfall #002 (580-88417-1) and Outfall #002 (580-88417-1[MSD]). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

Method(s) NWTPH-Gx: The CCVRT associated with batch 580-309481 fell high out side the control limits for %D for surrogate Trifluorotoluene (Surr) but was within the %recovery limits. Gasoline and 4-Bromofluorobenzene (Surr) met the control limits. All samples had Trifluorotoluene (Surr) and 4-Bromofluorobenzene (Surr) within the recovery limits there for the data has been reported.(CCVRT 580-309481/6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
X	Surrogate is outside control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88417-1

Date Collected: 08/15/19 09:40

Matrix: Water

Date Received: 08/15/19 11:24

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	F2 F1	1.0	0.53	ug/L			08/16/19 22:58	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					08/16/19 22:58	1
Toluene-d8 (Surr)	107		79 - 122					08/16/19 22:58	1
4-Bromofluorobenzene (Surr)	103		78 - 119					08/16/19 22:58	1
Dibromofluoromethane (Surr)	106		70 - 120					08/16/19 22:58	1
1,2-Dichloroethane-d4 (Surr)	118		70 - 120					08/16/19 22:58	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	F2 F1	0.062	0.0062	ug/L		08/22/19 10:54	08/28/19 19:26	1
Chrysene	ND	F2 F1	0.062	0.016	ug/L		08/22/19 10:54	08/28/19 19:26	1
Benzo[b]fluoranthene	ND	F2 F1	0.062	0.013	ug/L		08/22/19 10:54	08/28/19 19:26	1
Benzo[k]fluoranthene	ND	F2 F1	0.062	0.0062	ug/L		08/22/19 10:54	08/28/19 19:26	1
Benzo[a]pyrene	0.0062	J F2 F1	0.062	0.0062	ug/L		08/22/19 10:54	08/28/19 19:26	1
Indeno[1,2,3-cd]pyrene	ND	F2 F1	0.031	0.0062	ug/L		08/22/19 10:54	08/28/19 19:26	1
Dibenz(a,h)anthracene	ND	F2 F1	0.062	0.013	ug/L		08/22/19 10:54	08/28/19 19:26	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	51	X	54 - 120				08/22/19 10:54	08/28/19 19:26	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/28/19 16:12	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		50 - 150					08/28/19 16:12	1
Trifluorotoluene (Surr)	99		50 - 150					08/28/19 16:12	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		08/22/19 13:10	08/23/19 21:57	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		08/22/19 13:10	08/23/19 21:57	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150				08/22/19 13:10	08/23/19 21:57	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88417-2

Date Collected: 08/15/19 00:01

Matrix: Water

Date Received: 08/15/19 11:24

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/16/19 19:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123					08/16/19 19:42	1
Toluene-d8 (Surr)	106		79 - 122					08/16/19 19:42	1
4-Bromofluorobenzene (Surr)	99		78 - 119					08/16/19 19:42	1
Dibromofluoromethane (Surr)	104		70 - 120					08/16/19 19:42	1
1,2-Dichloroethane-d4 (Surr)	122	X	70 - 120					08/16/19 19:42	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/27/19 15:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150					08/27/19 15:13	1
Trifluorotoluene (Surr)	109		50 - 150					08/27/19 15:13	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-308621/7

Matrix: Water

Analysis Batch: 308621

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/16/19 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					08/16/19 18:53	1
Toluene-d8 (Surr)	105		79 - 122					08/16/19 18:53	1
4-Bromofluorobenzene (Surr)	97		78 - 119					08/16/19 18:53	1
Dibromofluoromethane (Surr)	106		70 - 120					08/16/19 18:53	1
1,2-Dichloroethane-d4 (Surr)	120		70 - 120					08/16/19 18:53	1

Lab Sample ID: LCS 580-308621/4

Matrix: Water

Analysis Batch: 308621

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.82		ug/L		98	65 - 135
Surrogate	%Recovery	Qualifier	Limits				
Trifluorotoluene (Surr)	99		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	103		78 - 119				
Dibromofluoromethane (Surr)	103		70 - 120				
1,2-Dichloroethane-d4 (Surr)	115		70 - 120				

Lab Sample ID: LCSD 580-308621/5

Matrix: Water

Analysis Batch: 308621

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.44		ug/L		94	65 - 135	4	33
Surrogate	%Recovery	Qualifier	Limits						
Trifluorotoluene (Surr)	99		74 - 123						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 119						
Dibromofluoromethane (Surr)	104		70 - 120						
1,2-Dichloroethane-d4 (Surr)	113		70 - 120						

Lab Sample ID: 580-88417-1 MS

Matrix: Water

Analysis Batch: 308621

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND	F2 F1	10.0	4.10	F1	ug/L		41	65 - 135
Surrogate	%Recovery	Qualifier	Limits						
Trifluorotoluene (Surr)	103		74 - 123						
Toluene-d8 (Surr)	98		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-88417-1 MS
Matrix: Water
Analysis Batch: 308621

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		78 - 119
Dibromofluoromethane (Surr)	105		70 - 120
1,2-Dichloroethane-d4 (Surr)	118		70 - 120

Lab Sample ID: 580-88417-1 MSD
Matrix: Water
Analysis Batch: 308621

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND	F2 F1	10.0	7.21	F2	ug/L		72	65 - 135	55	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	102		74 - 123
Toluene-d8 (Surr)	104		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	107		70 - 120
1,2-Dichloroethane-d4 (Surr)	118		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-309076/1-A
Matrix: Water
Analysis Batch: 309578

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.0060	ug/L		08/22/19 10:54	08/28/19 16:46	1
Chrysene	ND		0.060	0.015	ug/L		08/22/19 10:54	08/28/19 16:46	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		08/22/19 10:54	08/28/19 16:46	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		08/22/19 10:54	08/28/19 16:46	1
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		08/22/19 10:54	08/28/19 16:46	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		08/22/19 10:54	08/28/19 16:46	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		08/22/19 10:54	08/28/19 16:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	43	X	54 - 120	08/22/19 10:54	08/28/19 16:46	1

Lab Sample ID: LCS 580-309076/2-A
Matrix: Water
Analysis Batch: 309578

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.34		ug/L		83	53 - 130
Chrysene	4.00	3.09		ug/L		77	52 - 125
Benzo[b]fluoranthene	4.00	2.93		ug/L		73	57 - 132
Benzo[k]fluoranthene	4.00	3.22		ug/L		81	52 - 132
Benzo[a]pyrene	4.00	2.42		ug/L		61	33 - 129
Indeno[1,2,3-cd]pyrene	4.00	3.66		ug/L		91	58 - 133
Dibenz(a,h)anthracene	4.00	3.22		ug/L		80	57 - 140

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-309076/2-A

Matrix: Water

Analysis Batch: 309578

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 309076

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	60		54 - 120

Lab Sample ID: LCSD 580-309076/3-A

Matrix: Water

Analysis Batch: 309578

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 309076

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	4.00	3.73		ug/L		93	53 - 130	11	35	
Chrysene	4.00	3.34		ug/L		83	52 - 125	8	19	
Benzo[b]fluoranthene	4.00	3.25		ug/L		81	57 - 132	11	25	
Benzo[k]fluoranthene	4.00	3.35		ug/L		84	52 - 132	4	22	
Benzo[a]pyrene	4.00	2.96		ug/L		74	33 - 129	20	35	
Indeno[1,2,3-cd]pyrene	4.00	3.95		ug/L		99	58 - 133	8	31	
Dibenz(a,h)anthracene	4.00	3.45		ug/L		86	57 - 140	7	31	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	63		54 - 120

Lab Sample ID: 580-88417-1 MS

Matrix: Water

Analysis Batch: 309578

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 309076

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits	RPD		
Benzo[a]anthracene	ND	F2 F1	4.13	2.56		ug/L		62	53 - 130			
Chrysene	ND	F2 F1	4.13	2.43		ug/L		59	52 - 125			
Benzo[b]fluoranthene	ND	F2 F1	4.13	2.42		ug/L		59	57 - 132			
Benzo[k]fluoranthene	ND	F2 F1	4.13	2.62		ug/L		64	52 - 132			
Benzo[a]pyrene	0.0062	J F2 F1	4.13	2.14		ug/L		52	33 - 129			
Indeno[1,2,3-cd]pyrene	ND	F2 F1	4.13	3.63		ug/L		88	58 - 133			
Dibenz(a,h)anthracene	ND	F2 F1	4.13	3.12		ug/L		76	57 - 140			

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	18	X	54 - 120

Lab Sample ID: 580-88417-1 MSD

Matrix: Water

Analysis Batch: 309578

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 309076

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits	RPD		
Benzo[a]anthracene	ND	F2 F1	4.19	0.0961	F2 F1	ug/L		2	53 - 130	186	35	
Chrysene	ND	F2 F1	4.19	0.0798	F2 F1	ug/L		2	52 - 125	187	19	
Benzo[b]fluoranthene	ND	F2 F1	4.19	0.103	F2 F1	ug/L		2	57 - 132	184	25	
Benzo[k]fluoranthene	ND	F2 F1	4.19	0.0841	F2 F1	ug/L		2	52 - 132	188	22	
Benzo[a]pyrene	0.0062	J F2 F1	4.19	0.0721	F2 F1	ug/L		2	33 - 129	187	35	
Indeno[1,2,3-cd]pyrene	ND	F2 F1	4.19	0.141	F2 F1	ug/L		3	58 - 133	185	31	
Dibenz(a,h)anthracene	ND	F2 F1	4.19	0.122	F2 F1	ug/L		3	57 - 140	185	31	

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-88417-1 MSD
Matrix: Water
Analysis Batch: 309578

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 309076

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	43	X	54 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-309481/7
Matrix: Water
Analysis Batch: 309481

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/27/19 13:42	1
Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac			
%Recovery	Qualifier								
4-Bromofluorobenzene (Surr)	90		50 - 150		08/27/19 13:42	1			
Trifluorotoluene (Surr)	110		50 - 150		08/27/19 13:42	1			

Lab Sample ID: LCS 580-309481/8
Matrix: Water
Analysis Batch: 309481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.908		mg/L		91	79 - 120
Surrogate	LCS LCS		Limits				
%Recovery	Qualifier						
4-Bromofluorobenzene (Surr)	98		50 - 150				
Trifluorotoluene (Surr)	108		50 - 150				

Lab Sample ID: LCSD 580-309481/9
Matrix: Water
Analysis Batch: 309481

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.895		mg/L		90	79 - 120	1	10
Surrogate	LCSD LCSD		Limits						
%Recovery	Qualifier								
4-Bromofluorobenzene (Surr)	101		50 - 150						
Trifluorotoluene (Surr)	103		50 - 150						

Lab Sample ID: MB 580-309560/6
Matrix: Water
Analysis Batch: 309560

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			08/28/19 11:20	1
Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac			
%Recovery	Qualifier								
4-Bromofluorobenzene (Surr)	97		50 - 150		08/28/19 11:20	1			
Trifluorotoluene (Surr)	98		50 - 150		08/28/19 11:20	1			

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-309560/7

Matrix: Water

Analysis Batch: 309560

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.891		mg/L		89	79 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	94		50 - 150				
Trifluorotoluene (Surr)	100		50 - 150				

Lab Sample ID: LCSD 580-309560/8

Matrix: Water

Analysis Batch: 309560

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.906		mg/L		91	79 - 120	2	10
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		50 - 150						
Trifluorotoluene (Surr)	99		50 - 150						

Lab Sample ID: 580-88417-1 MS

Matrix: Water

Analysis Batch: 309560

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	0.908		mg/L		91	79 - 120
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		50 - 150						
Trifluorotoluene (Surr)	96		50 - 150						

Lab Sample ID: 580-88417-1 MSD

Matrix: Water

Analysis Batch: 309560

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	ND		1.00	0.878		mg/L		88	79 - 120	3	10
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	91		50 - 150								
Trifluorotoluene (Surr)	99		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-309109/1-B

Matrix: Water

Analysis Batch: 309228

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 309109

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/22/19 13:10	08/23/19 18:55	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		08/22/19 13:10	08/23/19 18:55	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	85		50 - 150	08/22/19 13:10	08/23/19 18:55	1

Lab Sample ID: LCS 580-309109/2-B
Matrix: Water
Analysis Batch: 309228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309109

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							RPD	Limit
#2 Diesel (C10-C24)	2.00	1.59		mg/L		80	50 - 120	
Motor Oil (>C24-C36)	2.00	2.13		mg/L		107	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	81		50 - 150

Lab Sample ID: LCSD 580-309109/3-B
Matrix: Water
Analysis Batch: 309228

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309109

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
							RPD	Limit	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.36		mg/L		68	50 - 120	16	26	
Motor Oil (>C24-C36)	2.00	1.82		mg/L		91	64 - 120	16	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	69		50 - 150

Lab Sample ID: 580-88417-1 MS
Matrix: Water
Analysis Batch: 309228

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 309109

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
									RPD	Limit
#2 Diesel (C10-C24)	ND		2.11	1.73		mg/L		82	50 - 120	
Motor Oil (>C24-C36)	ND		2.11	2.26		mg/L		108	64 - 120	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	80		50 - 150

Lab Sample ID: 580-88417-1 MSD
Matrix: Water
Analysis Batch: 309228

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 309109

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
									RPD	Limit	RPD	Limit
#2 Diesel (C10-C24)	ND		2.10	2.09		mg/L		99	50 - 120	19	26	
Motor Oil (>C24-C36)	ND		2.10	2.52		mg/L		120	64 - 120	11	24	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	92		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88417-1

Date Collected: 08/15/19 09:40

Matrix: Water

Date Received: 08/15/19 11:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	308621	08/16/19 22:58	TL1	TAL SEA
Total/NA	Prep	3520C			309076	08/22/19 10:54	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	309578	08/28/19 19:26	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	309560	08/28/19 16:12	DCV	TAL SEA
Total/NA	Prep	3510C			309109	08/22/19 13:10	PRO	TAL SEA
Total/NA	Cleanup	3630C			309139	08/22/19 19:53	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	309228	08/23/19 21:57	W1T	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88417-2

Date Collected: 08/15/19 00:01

Matrix: Water

Date Received: 08/15/19 11:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	308621	08/16/19 19:42	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	309481	08/27/19 15:13	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88417-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88417-1	Outfall #002	Water	08/15/19 09:40	08/15/19 11:24	
580-88417-2	Trip Blank	Water	08/15/19 00:01	08/15/19 11:24	

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

Rush

Short Hold

**Chain of
Custody Record**

Client Arcadis		Client Contact Ophélie Encelle		Date 8-16-2019	Chain of Custody Number 35639
Address 1100 Olive Way, Suite 800			Telephone Number (Area Code)/Fax Number 206-726-4730	Lab Number	Page <u>1</u> of <u>1</u>
City Seattle	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Loc: 580 88417
Project Name and Location (State) Edmonds Terminal			Billing Contact		
Contract/Purchase Order/Quote No.					

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives								Analysis (Attach list if more space is needed)	Spe. Con.	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Benzene EPA124	NWTPH-GX			NWTPH-DX W/SGC
Outfall #002	8/15/19	0940	X				2			8			X	X	X	X	PH = 8.06
Outfall #002 MS/MSD	8/15/19	0940	X				2			8			X	X	X	X	
Trip Blank	-	-	X							6			X	X			

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
----------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)

24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

1. Relinquished By Sign/Print (Signature) KILEY ZAUBI	Date 8/15/19	Time 1124
2. Relinquished By Sign/Print	Date	Time

QC Requirements (Specify)

1. Received By Sign/Print B. Gall	Date 8-15-19	Time 1124
2. Received By Sign/Print	Date	Time



530-88417 Chain of Custody

Therm. ID: **IKY** Cor: **15.6** ° Unc: **15.9** °

Cooler Dsc: **Small Blue**

Packing: **Bubble** FedEx: _____

Cust. Seal: Yes No Lab Cour: _____

Blue Ice: Dry, None Other: _____

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88417-1

Login Number: 88417

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88578-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
9/6/2019 4:07:06 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Job ID: 580-88578-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88578-1

Comments

No additional comments.

Receipt

The samples were received on 8/21/2019 10:47 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 10.2° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The method blank for preparation batch 580-309517 and analytical batch 580-309810 contained Benzo[a]anthracene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88578-1

Date Collected: 08/21/19 10:00

Matrix: Water

Date Received: 08/21/19 10:47

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/28/19 23:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					08/28/19 23:10	1
Toluene-d8 (Surr)	100		79 - 122					08/28/19 23:10	1
4-Bromofluorobenzene (Surr)	92		78 - 119					08/28/19 23:10	1
Dibromofluoromethane (Surr)	94		70 - 120					08/28/19 23:10	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					08/28/19 23:10	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.062	0.0062	ug/L		08/27/19 15:57	08/30/19 18:57	1
Chrysene	ND		0.062	0.015	ug/L		08/27/19 15:57	08/30/19 18:57	1
Benzo[b]fluoranthene	ND		0.062	0.013	ug/L		08/27/19 15:57	08/30/19 18:57	1
Benzo[k]fluoranthene	ND		0.062	0.0062	ug/L		08/27/19 15:57	08/30/19 18:57	1
Benzo[a]pyrene	ND		0.062	0.0062	ug/L		08/27/19 15:57	08/30/19 18:57	1
Indeno[1,2,3-cd]pyrene	ND		0.031	0.0062	ug/L		08/27/19 15:57	08/30/19 18:57	1
Dibenz(a,h)anthracene	ND		0.062	0.013	ug/L		08/27/19 15:57	08/30/19 18:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	72		54 - 120				08/27/19 15:57	08/30/19 18:57	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/02/19 16:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					09/02/19 16:40	1
Trifluorotoluene (Surr)	70		50 - 150					09/02/19 16:40	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		09/03/19 12:06	09/04/19 17:09	1
Motor Oil (>C24-C36)	0.11	J	0.37	0.10	mg/L		09/03/19 12:06	09/04/19 17:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150				09/03/19 12:06	09/04/19 17:09	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88578-2

Date Collected: 08/21/19 00:01

Matrix: Water

Date Received: 08/21/19 10:47

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/28/19 19:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					08/28/19 19:29	1
Toluene-d8 (Surr)	102		79 - 122					08/28/19 19:29	1
4-Bromofluorobenzene (Surr)	92		78 - 119					08/28/19 19:29	1
Dibromofluoromethane (Surr)	94		70 - 120					08/28/19 19:29	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					08/28/19 19:29	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/02/19 15:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					09/02/19 15:51	1
Trifluorotoluene (Surr)	95		50 - 150					09/02/19 15:51	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-309637/7

Matrix: Water

Analysis Batch: 309637

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			08/28/19 18:40	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123					08/28/19 18:40	1
Toluene-d8 (Surr)	103		79 - 122					08/28/19 18:40	1
4-Bromofluorobenzene (Surr)	93		78 - 119					08/28/19 18:40	1
Dibromofluoromethane (Surr)	91		70 - 120					08/28/19 18:40	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					08/28/19 18:40	1

Lab Sample ID: LCS 580-309637/4

Matrix: Water

Analysis Batch: 309637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.84		ug/L		98	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	98		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	98		78 - 119				
Dibromofluoromethane (Surr)	96		70 - 120				
1,2-Dichloroethane-d4 (Surr)	94		70 - 120				

Lab Sample ID: LCSD 580-309637/5

Matrix: Water

Analysis Batch: 309637

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.27		ug/L		93	65 - 135	6	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	99		74 - 123						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	96		70 - 120						
1,2-Dichloroethane-d4 (Surr)	94		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-309517/1-A

Matrix: Water

Analysis Batch: 309810

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 309517

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.00967	J	0.060	0.0060	ug/L		08/27/19 15:57	08/30/19 10:47	1
Chrysene	ND		0.060	0.015	ug/L		08/27/19 15:57	08/30/19 10:47	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		08/27/19 15:57	08/30/19 10:47	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		08/27/19 15:57	08/30/19 10:47	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-309517/1-A

Matrix: Water

Analysis Batch: 309810

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 309517

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		08/27/19 15:57	08/30/19 10:47	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		08/27/19 15:57	08/30/19 10:47	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		08/27/19 15:57	08/30/19 10:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Terphenyl-d14	84		54 - 120			08/27/19 15:57	08/30/19 10:47	1	

Lab Sample ID: LCS 580-309517/2-A

Matrix: Water

Analysis Batch: 309810

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 309517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							Limits	
Benzo[a]anthracene	4.00	3.55		ug/L		89	53 - 130	
Chrysene	4.00	3.50		ug/L		88	52 - 125	
Benzo[b]fluoranthene	4.00	4.07		ug/L		102	57 - 132	
Benzo[k]fluoranthene	4.00	3.44		ug/L		86	52 - 132	
Benzo[a]pyrene	4.00	2.80		ug/L		70	33 - 129	
Indeno[1,2,3-cd]pyrene	4.00	4.02		ug/L		100	58 - 133	
Dibenz(a,h)anthracene	4.00	3.96		ug/L		99	57 - 140	
Surrogate	%Recovery	Qualifier	Limits			LCS	LCS	
Terphenyl-d14	76		54 - 120					

Lab Sample ID: LCSD 580-309517/3-A

Matrix: Water

Analysis Batch: 309810

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 309517

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD Limit	
							Limits		RPD	Limit
Benzo[a]anthracene	4.00	3.82		ug/L		96	53 - 130	8	35	
Chrysene	4.00	3.68		ug/L		92	52 - 125	5	19	
Benzo[b]fluoranthene	4.00	3.70		ug/L		92	57 - 132	10	25	
Benzo[k]fluoranthene	4.00	3.76		ug/L		94	52 - 132	9	22	
Benzo[a]pyrene	4.00	3.01		ug/L		75	33 - 129	7	35	
Indeno[1,2,3-cd]pyrene	4.00	4.04		ug/L		101	58 - 133	1	31	
Dibenz(a,h)anthracene	4.00	3.92		ug/L		98	57 - 140	1	31	
Surrogate	%Recovery	Qualifier	Limits			LCSD	LCSD			
Terphenyl-d14	85		54 - 120							

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-310010/7

Matrix: Water

Analysis Batch: 310010

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			09/02/19 13:50	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-310010/7

Matrix: Water

Analysis Batch: 310010

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	94		50 - 150		09/02/19 13:50	1
Trifluorotoluene (Surr)	99		50 - 150		09/02/19 13:50	1

Lab Sample ID: LCS 580-310010/8

Matrix: Water

Analysis Batch: 310010

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.867		mg/L		87	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		50 - 150
Trifluorotoluene (Surr)	99		50 - 150

Lab Sample ID: LCSD 580-310010/9

Matrix: Water

Analysis Batch: 310010

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.876		mg/L		88	79 - 120	1	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		50 - 150
Trifluorotoluene (Surr)	95		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-310071/1-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 310071

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/03/19 12:06	09/04/19 14:35	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/03/19 12:06	09/04/19 14:35	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	84		50 - 150	09/03/19 12:06	09/04/19 14:35	1

Lab Sample ID: LCS 580-310071/2-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.72		mg/L		86	50 - 120
Motor Oil (>C24-C36)	2.00	2.31		mg/L		115	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-310071/2-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 310071

Surrogate	LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	91		50 - 150

Lab Sample ID: LCSD 580-310071/3-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	Limit	RPD
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120	9	26	
Motor Oil (>C24-C36)	2.00	2.16		mg/L		108	64 - 120	7	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	93		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88578-1

Date Collected: 08/21/19 10:00

Matrix: Water

Date Received: 08/21/19 10:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	309637	08/28/19 23:10	TL1	TAL SEA
Total/NA	Prep	3520C			309517	08/27/19 15:57	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	309810	08/30/19 18:57	ADB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310010	09/02/19 16:40	DCV	TAL SEA
Total/NA	Prep	3510C			310071	09/03/19 12:06	PRO	TAL SEA
Total/NA	Cleanup	3630C			310179	09/04/19 10:41	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	310192	09/04/19 17:09	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88578-2

Date Collected: 08/21/19 00:01

Matrix: Water

Date Received: 08/21/19 10:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	309637	08/28/19 19:29	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310010	09/02/19 15:51	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88578-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88578-1	Outfall #002	Water	08/21/19 10:00	08/21/19 10:47	
580-88578-2	Trip Blank	Water	08/21/19 00:01	08/21/19 10:47	

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TestAmerica

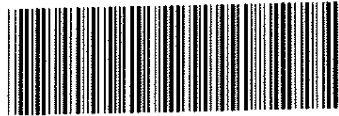
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

Rush

Short Hold

Chain of Custody Record

Client Arcadis			Client Contact Ophélie Encelle					Date 8-21-2019			Chain of Custody Number 38430								
Address 1100 Olive Way Suite 800			Telephone Number (Area Code)/Fax Number 206-726-4730					Lab Number			Page L of 1								
City Seattle		State WA	Zip Code 98101		Sampler Kiley Zaubi		Lab Contact Elaine Walker			Analysis (Attach list if more space is needed)									
Project Name and Location (State) Edmonds Terminal					Billing Contact			Lnc: 580 88578											
Contract/Purchase Order/Quote No.			Matrix				Containers & Preservatives												
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)			Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH	Analysis (Attach list if more space is needed)				
Outfall # 002			8-21-19	1000		<input checked="" type="checkbox"/>			2			8			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PH = 8.55
Trip BLANK			-	-		<input checked="" type="checkbox"/>						6			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		* Benzene and CPAHS with quantitative level less than 1 ug/l	
														 580-88578 Chain of Custody			* Use standard SGC		

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

QC Requirements (Specify)

1. Relinquished By Sign/Print KCZ - Kiley Zaubi		Date 8-21-19	Time 1047	1. Received By Sign/Print B. Gall B. Gall JERA TA		Date 8-21-19	Time 1047
2. Relinquished By Sign/Print		Date	Time	2. Received By Sign/Print		Date	Time
3. Relinquished By Sign/Print		Date	Time	3. Received By Sign/Print		Date	Time

Therm. ID: **A2** Cor: **10.2** Unc: **0.5**
 Cooler Desc: **SMI Blue**
 Packing: **Bubble** FedEx:
 Cust. Seal: Yes No UPS:
 Blue Ice: Dry, None Lab Cour:
 Comments: _____ Other: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88578-1

Login Number: 88578

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



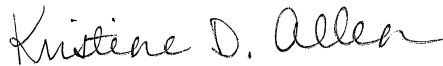
ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88753-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
9/17/2019 5:52:31 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Job ID: 580-88753-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88753-1

Comments

No additional comments.

Receipt

The samples were received on 8/29/2019 11:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.1° C.

GC/MS VOA

Method(s) 624.1: The surrogate recovery for the blank associated with analytical batch 580-309978 was outside the upper control limits.

Method(s) 624.1: Surrogate 4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) recovery for the following samples were outside the upper control limit: Outfall #002 (580-88753-1) and (LCS 580-309978/4). The associated sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The method blank for preparation batch 580-310280 and analytical batch 580-310804 contained Benzo[b]fluoranthene, Benzo[k]fluoranthene and Benzo[a]pyrene above the method detection limit. This target analyte concentration was less than the reporting limit (RL) and associated samples were non-detect; therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8270C SIM: The method blank for preparation batch 580-310280 contained Indeno[1,2,3-cd]pyrene, Dibenz(a,h)anthracene, Chrysene and Benzo[a]anthracene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method(s) 8270C SIM: The LCS/LCSD pair associated with preparation batch 580-310280 and analytical batch 580-310804 recovered below control limits for Benzo[a]pyrene. The MS/MSD pair recovered within limits and re-extraction would occur out of hold. The data is qualified and reported per client approval. Outfall #002 (580-88753-1), (LCS 580-310280/2-A) and (LCSD 580-310280/3-A)

Method(s) 8270C SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-310280 and analytical batch 580-310804 recovered outside control limits for the following analytes: Benzo[a]pyrene.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88753-1

Date Collected: 08/29/19 09:20

Matrix: Water

Date Received: 08/29/19 11:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/01/19 22:52	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	119		74 - 123					09/01/19 22:52	1
Toluene-d8 (Surr)	127	X	79 - 122					09/01/19 22:52	1
4-Bromofluorobenzene (Surr)	123	X	78 - 119					09/01/19 22:52	1
Dibromofluoromethane (Surr)	90		70 - 120					09/01/19 22:52	1
1,2-Dichloroethane-d4 (Surr)	82		70 - 120					09/01/19 22:52	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.063	0.0063	ug/L		09/05/19 11:06	09/11/19 16:15	1
Chrysene	ND		0.063	0.016	ug/L		09/05/19 11:06	09/11/19 16:15	1
Benzo[b]fluoranthene	ND		0.063	0.014	ug/L		09/05/19 11:06	09/11/19 16:15	1
Benzo[k]fluoranthene	ND		0.063	0.0063	ug/L		09/05/19 11:06	09/11/19 16:15	1
Benzo[a]pyrene	ND	*	0.063	0.0063	ug/L		09/05/19 11:06	09/11/19 16:15	1
Indeno[1,2,3-cd]pyrene	ND		0.031	0.0063	ug/L		09/05/19 11:06	09/11/19 16:15	1
Dibenz(a,h)anthracene	ND		0.063	0.014	ug/L		09/05/19 11:06	09/11/19 16:15	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		54 - 120				09/05/19 11:06	09/11/19 16:15	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/04/19 11:45	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		50 - 150					09/04/19 11:45	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		09/03/19 12:06	09/04/19 17:31	1
Motor Oil (>C24-C36)	0.14	J	0.37	0.10	mg/L		09/03/19 12:06	09/04/19 17:31	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150				09/03/19 12:06	09/04/19 17:31	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88753-2

Date Collected: 08/29/19 00:01

Matrix: Water

Date Received: 08/29/19 11:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/01/19 20:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	113		74 - 123					09/01/19 20:02	1
Toluene-d8 (Surr)	89		79 - 122					09/01/19 20:02	1
4-Bromofluorobenzene (Surr)	112		78 - 119					09/01/19 20:02	1
Dibromofluoromethane (Surr)	111		70 - 120					09/01/19 20:02	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					09/01/19 20:02	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/03/19 01:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					09/03/19 01:33	1
Trifluorotoluene (Surr)	95		50 - 150					09/03/19 01:33	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-309978/7

Matrix: Water

Analysis Batch: 309978

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/01/19 18:25	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	108		74 - 123					09/01/19 18:25	1
Toluene-d8 (Surr)	98		79 - 122					09/01/19 18:25	1
4-Bromofluorobenzene (Surr)	133	X	78 - 119					09/01/19 18:25	1
Dibromofluoromethane (Surr)	100		70 - 120					09/01/19 18:25	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120					09/01/19 18:25	1

Lab Sample ID: LCS 580-309978/4

Matrix: Water

Analysis Batch: 309978

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.50		ug/L		95	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	108		74 - 123				
Toluene-d8 (Surr)	126	X	79 - 122				
4-Bromofluorobenzene (Surr)	112		78 - 119				
Dibromofluoromethane (Surr)	88		70 - 120				
1,2-Dichloroethane-d4 (Surr)	84		70 - 120				

Lab Sample ID: LCSD 580-309978/5

Matrix: Water

Analysis Batch: 309978

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.07		ug/L		91	65 - 135	5	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	113		74 - 123						
Toluene-d8 (Surr)	94		79 - 122						
4-Bromofluorobenzene (Surr)	114		78 - 119						
Dibromofluoromethane (Surr)	105		70 - 120						
1,2-Dichloroethane-d4 (Surr)	91		70 - 120						

Lab Sample ID: 580-88753-1 MS

Matrix: Water

Analysis Batch: 309978

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		10.0	11.3		ug/L		113	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Trifluorotoluene (Surr)	113		74 - 123						
Toluene-d8 (Surr)	93		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-88753-1 MS
Matrix: Water
Analysis Batch: 309978

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		78 - 119
Dibromofluoromethane (Surr)	103		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Lab Sample ID: 580-88753-1 MSD
Matrix: Water
Analysis Batch: 309978

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		10.0	9.29		ug/L		93	65 - 135	20	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	114		74 - 123
Toluene-d8 (Surr)	93		79 - 122
4-Bromofluorobenzene (Surr)	118		78 - 119
Dibromofluoromethane (Surr)	105		70 - 120
1,2-Dichloroethane-d4 (Surr)	94		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-310280/1-A
Matrix: Water
Analysis Batch: 310804

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310280

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.0606		0.060	0.0060	ug/L		09/05/19 11:06	09/11/19 13:55	1
Chrysene	0.0606		0.060	0.015	ug/L		09/05/19 11:06	09/11/19 13:55	1
Benzo[b]fluoranthene	0.0577	J	0.060	0.013	ug/L		09/05/19 11:06	09/11/19 13:55	1
Benzo[k]fluoranthene	0.0536	J	0.060	0.0060	ug/L		09/05/19 11:06	09/11/19 13:55	1
Benzo[a]pyrene	0.0132	J	0.060	0.0060	ug/L		09/05/19 11:06	09/11/19 13:55	1
Indeno[1,2,3-cd]pyrene	0.0729		0.030	0.0060	ug/L		09/05/19 11:06	09/11/19 13:55	1
Dibenz(a,h)anthracene	0.0604		0.060	0.013	ug/L		09/05/19 11:06	09/11/19 13:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	96		54 - 120	09/05/19 11:06	09/11/19 13:55	1

Lab Sample ID: LCS 580-310280/2-A
Matrix: Water
Analysis Batch: 310804

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310280

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.91		ug/L		98	53 - 130
Chrysene	4.00	3.95		ug/L		99	52 - 125
Benzo[b]fluoranthene	4.00	4.03		ug/L		101	57 - 132
Benzo[k]fluoranthene	4.00	3.83		ug/L		96	52 - 132
Benzo[a]pyrene	4.00	0.989	*	ug/L		25	33 - 129
Indeno[1,2,3-cd]pyrene	4.00	4.02		ug/L		100	58 - 133
Dibenz(a,h)anthracene	4.00	4.39		ug/L		110	57 - 140

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-310280/2-A

Matrix: Water

Analysis Batch: 310804

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 310280

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	95		54 - 120

Lab Sample ID: LCSD 580-310280/3-A

Matrix: Water

Analysis Batch: 310804

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 310280

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec.		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.60		ug/L		90	53 - 130	8	35	
Chrysene	4.00	3.57		ug/L		89	52 - 125	10	19	
Benzo[b]fluoranthene	4.00	3.79		ug/L		95	57 - 132	6	25	
Benzo[k]fluoranthene	4.00	3.40		ug/L		85	52 - 132	12	22	
Benzo[a]pyrene	4.00	0.376 *		ug/L		9	33 - 129	90	35	
Indeno[1,2,3-cd]pyrene	4.00	3.74		ug/L		94	58 - 133	7	31	
Dibenz(a,h)anthracene	4.00	4.05		ug/L		101	57 - 140	8	31	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	98		54 - 120

Lab Sample ID: 580-88753-1 MS

Matrix: Water

Analysis Batch: 310804

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 310280

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec.	
				Result	Qualifier				Limits	RPD
Benzo[a]anthracene	ND		4.15	4.06		ug/L		98	53 - 130	
Chrysene	ND		4.15	3.95		ug/L		95	52 - 125	
Benzo[b]fluoranthene	ND		4.15	4.22		ug/L		102	57 - 132	
Benzo[k]fluoranthene	ND		4.15	3.70		ug/L		89	52 - 132	
Benzo[a]pyrene	ND *		4.15	2.67		ug/L		64	33 - 129	
Indeno[1,2,3-cd]pyrene	ND		4.15	4.87		ug/L		117	58 - 133	
Dibenz(a,h)anthracene	ND		4.15	4.69		ug/L		113	57 - 140	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	84		54 - 120

Lab Sample ID: 580-88753-1 MSD

Matrix: Water

Analysis Batch: 310804

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 310280

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec.		RPD	Limit
				Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	ND		4.08	3.99		ug/L		98	53 - 130	2	35	
Chrysene	ND		4.08	3.84		ug/L		94	52 - 125	3	19	
Benzo[b]fluoranthene	ND		4.08	4.12		ug/L		101	57 - 132	2	25	
Benzo[k]fluoranthene	ND		4.08	3.62		ug/L		89	52 - 132	2	22	
Benzo[a]pyrene	ND *		4.08	2.94		ug/L		72	33 - 129	10	35	
Indeno[1,2,3-cd]pyrene	ND		4.08	4.54		ug/L		111	58 - 133	7	31	
Dibenz(a,h)anthracene	ND		4.08	4.58		ug/L		112	57 - 140	2	31	

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-88753-1 MSD
Matrix: Water
Analysis Batch: 310804

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 310280

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14	89		54 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-310021/33
Matrix: Water
Analysis Batch: 310021

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/03/19 00:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	96		50 - 150		09/03/19 00:21	1			
Trifluorotoluene (Surr)	100		50 - 150		09/03/19 00:21	1			

Lab Sample ID: LCS 580-310021/34
Matrix: Water
Analysis Batch: 310021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.918		mg/L		92	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	95		50 - 150				
Trifluorotoluene (Surr)	97		50 - 150				

Lab Sample ID: LCSD 580-310021/35
Matrix: Water
Analysis Batch: 310021

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.902		mg/L		90	79 - 120	2	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		50 - 150						
Trifluorotoluene (Surr)	97		50 - 150						

Lab Sample ID: MB 580-310386/7
Matrix: Water
Analysis Batch: 310386

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/04/19 10:33	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	91		50 - 150		09/04/19 10:33	1			

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-310386/8

Matrix: Water

Analysis Batch: 310386

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.843		mg/L		84	79 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	94		50 - 150				

Lab Sample ID: LCSD 580-310386/9

Matrix: Water

Analysis Batch: 310386

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.839		mg/L		84	79 - 120	0	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	96		50 - 150						

Lab Sample ID: 580-88753-1 MS

Matrix: Water

Analysis Batch: 310386

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	0.886		mg/L		89	79 - 120
Surrogate	%Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	98		50 - 150						

Lab Sample ID: 580-88753-1 MSD

Matrix: Water

Analysis Batch: 310386

Client Sample ID: Outfall #002

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	ND		1.00	0.901		mg/L		90	79 - 120	2	10
Surrogate	%Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	96		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-310071/1-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 310071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/03/19 12:06	09/04/19 14:35	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/03/19 12:06	09/04/19 14:35	1
Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	84		50 - 150	09/03/19 12:06	09/04/19 14:35	1			

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-310071/2-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.72		mg/L		86	50 - 120
Motor Oil (>C24-C36)	2.00	2.31		mg/L		115	64 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
<i>o</i> -Terphenyl	91		50 - 150				

Lab Sample ID: LCSD 580-310071/3-B

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120	9	26
Motor Oil (>C24-C36)	2.00	2.16		mg/L		108	64 - 120	7	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	93		50 - 150						

Lab Sample ID: 580-88753-1 MS

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	ND		2.07	1.90		mg/L		92	50 - 120
Motor Oil (>C24-C36)	0.14	J	2.07	2.42		mg/L		110	64 - 120
Surrogate	%Recovery	MS Qualifier	Limits						
<i>o</i> -Terphenyl	104		50 - 150						

Lab Sample ID: 580-88753-1 MSD

Matrix: Water

Analysis Batch: 310192

Client Sample ID: Outfall #002

Prep Type: Total/NA

Prep Batch: 310071

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	ND		2.08	2.10		mg/L		101	50 - 120	10	26
Motor Oil (>C24-C36)	0.14	J	2.08	2.48		mg/L		113	64 - 120	3	24
Surrogate	%Recovery	MSD Qualifier	Limits								
<i>o</i> -Terphenyl	106		50 - 150								

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88753-1

Date Collected: 08/29/19 09:20

Matrix: Water

Date Received: 08/29/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	309978	09/01/19 22:52	CJ	TAL SEA
Total/NA	Prep	3520C			310280	09/05/19 11:06	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	310804	09/11/19 16:15	KFS	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310386	09/04/19 11:45	DCV	TAL SEA
Total/NA	Prep	3510C			310071	09/03/19 12:06	PRO	TAL SEA
Total/NA	Cleanup	3630C			310179	09/04/19 10:41	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	310192	09/04/19 17:31	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88753-2

Date Collected: 08/29/19 00:01

Matrix: Water

Date Received: 08/29/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	309978	09/01/19 20:02	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310021	09/03/19 01:33	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20



Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-88753-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88753-1	Outfall #002	Water	08/29/19 09:20	08/29/19 11:00	
580-88753-2	Trip Blank	Water	08/29/19 00:01	08/29/19 11:00	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush
 Short Hold

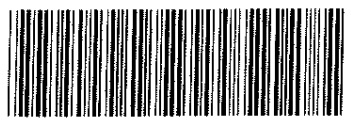
Chain of Custody Record

Client: Arcadis Client Contact: Ophélie Encelle Date: 8/29/2019 Chain of Custody Number: 35254
Address: 1100 Olive Way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
City: Seattle State: WA Zip Code: 98101 Sampler: Kiley Zaubi Lab Contact: Elaine Walker Page 1 of 1

Project Name and Location (State): Edmonds Terminal Billing Contact: _____ Analysis (Attach list if more space is needed):
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis Results				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH						
Outfall #002	8/29/19	0920	X				2		8					X	X	X	X	pH = 8.40 Benzenes and cPAHs must have a quantitative less than 1 ug/L *Use standard SGC
Outfall #002 mslmsd	8/29/19	0920	X				2		8					X	X	X	X	
Trip Blank	-	-	X						6					X	X			

Loc: 580
88753 s/ot
pH = 8.40
Benzenes and cPAHs must have a quantitative less than 1 ug/L
*Use standard SGC



580-88753 Chain of Custody

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown
Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT
QC Requirements (Specify): _____
1. Relinquished By: Kiley Zaubi Date: 8/29/19 Time: _____ 1. Received By: B. Gail Serrano Date: 8-29-19 Time: 1100
2. Relinquished By: _____ Date: _____ Time: _____ 2. Received By: _____ Date: _____ Time: _____
3. Relinquished By: _____ Date: _____ Time: _____ 3. Received By: _____ Date: _____ Time: _____

Comments: _____ Therm. ID: IR4 Cor: 6.1 ° Unc: 6.4 °
Cooler Desc: San Blue FedEx: _____
Packing: Bubble UPS: _____
Cust. Seal: Yes No Lab Cour: 7
Blue Ice: (Vet) Dry, None Other: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88753-1

Login Number: 88753

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88953-1

Client Project/Site: Chevron Edmonds Terminal

For:

ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
9/24/2019 5:17:52 PM

Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Job ID: 580-88953-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-88953-1

Comments

No additional comments.

Receipt

The samples were received on 9/5/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 14.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method(s) NWTPH-Dx: n-Octane is automatically misidentified as n-Nonane. These markers are not within analytical ranges of interest; the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88953-1

Date Collected: 09/05/19 10:00

Matrix: Water

Date Received: 09/05/19 10:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/10/19 04:03	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	108		74 - 123					09/10/19 04:03	1
Toluene-d8 (Surr)	102		79 - 122					09/10/19 04:03	1
4-Bromofluorobenzene (Surr)	99		78 - 119					09/10/19 04:03	1
Dibromofluoromethane (Surr)	96		70 - 120					09/10/19 04:03	1
1,2-Dichloroethane-d4 (Surr)	90		70 - 120					09/10/19 04:03	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.061	0.0061	ug/L		09/12/19 15:08	09/23/19 16:32	1
Chrysene	ND		0.061	0.015	ug/L		09/12/19 15:08	09/23/19 16:32	1
Benzo[b]fluoranthene	ND		0.061	0.013	ug/L		09/12/19 15:08	09/23/19 16:32	1
Benzo[k]fluoranthene	ND		0.061	0.0061	ug/L		09/12/19 15:08	09/23/19 16:32	1
Benzo[a]pyrene	ND		0.061	0.0061	ug/L		09/12/19 15:08	09/23/19 16:32	1
Indeno[1,2,3-cd]pyrene	ND		0.031	0.0061	ug/L		09/12/19 15:08	09/23/19 16:32	1
Dibenz(a,h)anthracene	ND		0.061	0.013	ug/L		09/12/19 15:08	09/23/19 16:32	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		54 - 120				09/12/19 15:08	09/23/19 16:32	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/10/19 21:28	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		50 - 150					09/10/19 21:28	1
Trifluorotoluene (Surr)	96		50 - 150					09/10/19 21:28	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		09/17/19 11:52	09/18/19 13:05	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		09/17/19 11:52	09/18/19 13:05	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				09/17/19 11:52	09/18/19 13:05	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-88953-2

Date Collected: 09/05/19 00:01

Matrix: Water

Date Received: 09/05/19 10:45

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/09/19 22:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123					09/09/19 22:42	1
Toluene-d8 (Surr)	102		79 - 122					09/09/19 22:42	1
4-Bromofluorobenzene (Surr)	99		78 - 119					09/09/19 22:42	1
Dibromofluoromethane (Surr)	95		70 - 120					09/09/19 22:42	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 120					09/09/19 22:42	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/10/19 15:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150					09/10/19 15:50	1
Trifluorotoluene (Surr)	79		50 - 150					09/10/19 15:50	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-310637/7

Matrix: Water

Analysis Batch: 310637

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/09/19 21:52	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					09/09/19 21:52	1
Toluene-d8 (Surr)	101		79 - 122					09/09/19 21:52	1
4-Bromofluorobenzene (Surr)	99		78 - 119					09/09/19 21:52	1
Dibromofluoromethane (Surr)	95		70 - 120					09/09/19 21:52	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 120					09/09/19 21:52	1

Lab Sample ID: LCS 580-310637/4

Matrix: Water

Analysis Batch: 310637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.81		ug/L		88	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	106		74 - 123				
Toluene-d8 (Surr)	102		79 - 122				
4-Bromofluorobenzene (Surr)	105		78 - 119				
Dibromofluoromethane (Surr)	96		70 - 120				
1,2-Dichloroethane-d4 (Surr)	88		70 - 120				

Lab Sample ID: LCSD 580-310637/5

Matrix: Water

Analysis Batch: 310637

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	8.79		ug/L		88	65 - 135	0	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	104		74 - 123						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	102		78 - 119						
Dibromofluoromethane (Surr)	97		70 - 120						
1,2-Dichloroethane-d4 (Surr)	86		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-311031/1-A

Matrix: Water

Analysis Batch: 311993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 311031

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.0060	ug/L		09/12/19 15:08	09/23/19 11:37	1
Chrysene	ND		0.060	0.015	ug/L		09/12/19 15:08	09/23/19 11:37	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		09/12/19 15:08	09/23/19 11:37	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		09/12/19 15:08	09/23/19 11:37	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-311031/1-A

Matrix: Water

Analysis Batch: 311993

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 311031

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		09/12/19 15:08	09/23/19 11:37	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		09/12/19 15:08	09/23/19 11:37	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		09/12/19 15:08	09/23/19 11:37	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	88		54 - 120	09/12/19 15:08	09/23/19 11:37	1

Lab Sample ID: LCS 580-311031/2-A

Matrix: Water

Analysis Batch: 311993

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 311031

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.58		ug/L		90	53 - 130
Chrysene	4.00	3.84		ug/L		96	52 - 125
Benzo[b]fluoranthene	4.00	4.08		ug/L		102	57 - 132
Benzo[k]fluoranthene	4.00	3.58		ug/L		89	52 - 132
Benzo[a]pyrene	4.00	2.40		ug/L		60	33 - 129
Indeno[1,2,3-cd]pyrene	4.00	4.38		ug/L		109	58 - 133
Dibenz(a,h)anthracene	4.00	4.35		ug/L		109	57 - 140

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	82		54 - 120

Lab Sample ID: LCSD 580-311031/3-A

Matrix: Water

Analysis Batch: 311993

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 311031

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	3.94		ug/L		99	53 - 130	10	35
Chrysene	4.00	4.04		ug/L		101	52 - 125	5	19
Benzo[b]fluoranthene	4.00	4.27		ug/L		107	57 - 132	5	25
Benzo[k]fluoranthene	4.00	3.75		ug/L		94	52 - 132	5	22
Benzo[a]pyrene	4.00	2.76		ug/L		69	33 - 129	14	35
Indeno[1,2,3-cd]pyrene	4.00	4.64		ug/L		116	58 - 133	6	31
Dibenz(a,h)anthracene	4.00	4.57		ug/L		114	57 - 140	5	31

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	91		54 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-310718/7

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			09/10/19 14:13	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-310718/7

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	94		50 - 150		09/10/19 14:13	1
Trifluorotoluene (Surr)	68		50 - 150		09/10/19 14:13	1

Lab Sample ID: LCS 580-310718/8

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	94		50 - 150
Trifluorotoluene (Surr)	103		50 - 150

Lab Sample ID: LCSD 580-310718/9

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	98		50 - 150
Trifluorotoluene (Surr)	101		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-311437/1-B

Matrix: Water

Analysis Batch: 311524

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 311437

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/17/19 11:52	09/18/19 10:53	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/17/19 11:52	09/18/19 10:53	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	59		50 - 150	09/17/19 11:52	09/18/19 10:53	1

Lab Sample ID: LCS 580-311437/2-B

Matrix: Water

Analysis Batch: 311524

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 311437

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.87		mg/L		94	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-311437/2-B

Matrix: Water

Analysis Batch: 311524

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 311437

Surrogate	LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	94		50 - 150

Lab Sample ID: LCSD 580-311437/3-B

Matrix: Water

Analysis Batch: 311524

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 311437

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	2.00	1.66		mg/L		83	50 - 120	2	26	
Motor Oil (>C24-C36)	2.00	1.88		mg/L		94	64 - 120	0	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	99		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-88953-1

Date Collected: 09/05/19 10:00

Matrix: Water

Date Received: 09/05/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	310637	09/10/19 04:03	APR	TAL SEA
Total/NA	Prep	3520C			311031	09/12/19 15:08	N1C	TAL SEA
Total/NA	Analysis	8270C SIM		1	311993	09/23/19 16:32	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 21:28	DCV	TAL SEA
Total/NA	Prep	3510C			311437	09/17/19 11:52	PRO	TAL SEA
Total/NA	Cleanup	3630C			311506	09/17/19 19:42	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	311524	09/18/19 13:05	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-88953-2

Date Collected: 09/05/19 00:01

Matrix: Water

Date Received: 09/05/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	310637	09/09/19 22:42	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 15:50	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
Alaska (UST)	State Program	17-024	01-19-20
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	DoD	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
California	State Program	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Montana (UST)	State Program	N/A	04-30-20
Oregon	NELAP	WA100007	11-05-19
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	Federal	LE058448-0	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-14-00126	02-10-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20
Washington	State Program	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-88953-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88953-1	Outfall #002	Water	09/05/19 10:00	09/05/19 10:45	
580-88953-2	Trip Blank	Water	09/05/19 00:01	09/05/19 10:45	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush

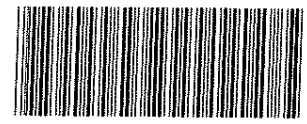
Short Hold

Chain of Custody Record

Client Arcadis		Client Contact Ophélie Encelle		Date 9-5-2019	Chain of Custody Number 38464
Address 1100 Olive Way, Suite 800		Telephone Number (Area Code)/Fax Number		Lab Number	
City Seattle, WA	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Page 1 of 1

Project Name and Location (State) Edmonds Terminal	Billing Contact	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Special Instructions/Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc	MeOH					
Outfall #002	9/5/19	1000		X			2			8								pH = 7.2
TRIP BLANK	-	-		X						6								*Benzenes and oPATHS must have a quantitative less than 7 ug/L
																		*Use standard 56 L



530-88953 Chain of Custody

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
-----------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other STAT	QC Requirements (Specify)
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print Kiley C Zaubi Kiley Zaubi	Date 9-5-19	Time 1045	1. Received By Sign/Print B. Gall B. Gall SE+PA	Date 9-5-19	Time 1045
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

Therm. ID: **IRS** Cor: **14.0** °C Unc: **14.1** °C
Cooler Disc: **Sal Blue**
Packing: **Bubble** FedEx: _____
Cust. Seal: Yes No Lab Cour:
Blue Ice: (Wet, Dry, None) Other: **9/24/2019**

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-88953-1

Login Number: 88953

List Number: 1

Creator: Harris, Terrence C

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89089-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
10/14/2019 4:50:16 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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TotalAccess

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Job ID: 580-89089-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-89089-1

Receipt

Three samples were received on 9/10/2019 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270C SIM: The following analyte(s) recovered outside control limits for the LCS/LCSD associated with preparation batch 580-311290 and analytical batch 580-312694: Benzo[a]anthracene. These analytes were outside the Marginal Exceedance Limits and/or were indicative of a systematic problem; therefore, re-extraction and/or re-analysis was performed. Since the re-extract was outside of holding time, both sets of data are reported.

Method(s) 8270C SIM: Reanalysis of the following samples were performed outside of the analytical holding time: Outfall #002 (580-89089-1) and DUP-1 (580-89089-2).

Method(s) 8270C SIM: The method blank for preparation batch 580-313830 and 580-313830 and analytical batch 580-314009 contained Benzo[a]anthracene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89089-1

Date Collected: 09/09/19 09:30

Matrix: Water

Date Received: 09/10/19 10:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/13/19 19:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	110		74 - 123					09/13/19 19:13	1
Toluene-d8 (Surr)	103		79 - 122					09/13/19 19:13	1
4-Bromofluorobenzene (Surr)	102		78 - 119					09/13/19 19:13	1
Dibromofluoromethane (Surr)	95		70 - 120					09/13/19 19:13	1
1,2-Dichloroethane-d4 (Surr)	89		70 - 120					09/13/19 19:13	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.063	0.0063	ug/L		09/16/19 10:31	09/29/19 21:42	1
Chrysene	ND		0.063	0.016	ug/L		09/16/19 10:31	09/29/19 21:42	1
Benzo[b]fluoranthene	ND		0.063	0.014	ug/L		09/16/19 10:31	09/29/19 21:42	1
Benzo[k]fluoranthene	ND		0.063	0.0063	ug/L		09/16/19 10:31	09/29/19 21:42	1
Benzo[a]pyrene	ND *		0.063	0.0063	ug/L		09/16/19 10:31	09/29/19 21:42	1
Indeno[1,2,3-cd]pyrene	ND		0.032	0.0063	ug/L		09/16/19 10:31	09/29/19 21:42	1
Dibenz(a,h)anthracene	ND		0.063	0.014	ug/L		09/16/19 10:31	09/29/19 21:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	59		54 - 120				09/16/19 10:31	09/29/19 21:42	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.063	0.0063	ug/L		10/09/19 20:51	10/11/19 16:30	1
Chrysene	ND	H	0.063	0.016	ug/L		10/09/19 20:51	10/11/19 16:30	1
Benzo[b]fluoranthene	ND	H	0.063	0.014	ug/L		10/09/19 20:51	10/11/19 16:30	1
Benzo[k]fluoranthene	ND	H	0.063	0.0063	ug/L		10/09/19 20:51	10/11/19 16:30	1
Benzo[a]pyrene	ND	H	0.063	0.0063	ug/L		10/09/19 20:51	10/11/19 16:30	1
Indeno[1,2,3-cd]pyrene	ND	H	0.032	0.0063	ug/L		10/09/19 20:51	10/11/19 16:30	1
Dibenz(a,h)anthracene	ND	H	0.063	0.014	ug/L		10/09/19 20:51	10/11/19 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	55		54 - 120				10/09/19 20:51	10/11/19 16:30	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/13/19 22:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150					09/13/19 22:45	1
Trifluorotoluene (Surr)	109		50 - 150					09/13/19 22:45	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		09/20/19 11:09	09/26/19 14:52	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		09/20/19 11:09	09/26/19 14:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150				09/20/19 11:09	09/26/19 14:52	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Client Sample ID: DUP-1

Lab Sample ID: 580-89089-2

Date Collected: 09/09/19 00:00

Matrix: Water

Date Received: 09/10/19 10:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/13/19 19:37	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					09/13/19 19:37	1
Toluene-d8 (Surr)	102		79 - 122					09/13/19 19:37	1
4-Bromofluorobenzene (Surr)	100		78 - 119					09/13/19 19:37	1
Dibromofluoromethane (Surr)	92		70 - 120					09/13/19 19:37	1
1,2-Dichloroethane-d4 (Surr)	87		70 - 120					09/13/19 19:37	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.065	0.0065	ug/L		09/16/19 10:31	09/29/19 22:09	1
Chrysene	ND		0.065	0.016	ug/L		09/16/19 10:31	09/29/19 22:09	1
Benzo[b]fluoranthene	ND		0.065	0.014	ug/L		09/16/19 10:31	09/29/19 22:09	1
Benzo[k]fluoranthene	ND		0.065	0.0065	ug/L		09/16/19 10:31	09/29/19 22:09	1
Benzo[a]pyrene	ND *		0.065	0.0065	ug/L		09/16/19 10:31	09/29/19 22:09	1
Indeno[1,2,3-cd]pyrene	ND		0.032	0.0065	ug/L		09/16/19 10:31	09/29/19 22:09	1
Dibenz(a,h)anthracene	ND		0.065	0.014	ug/L		09/16/19 10:31	09/29/19 22:09	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	58		54 - 120				09/16/19 10:31	09/29/19 22:09	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.065	0.0065	ug/L		10/09/19 20:51	10/11/19 16:57	1
Chrysene	ND	H	0.065	0.016	ug/L		10/09/19 20:51	10/11/19 16:57	1
Benzo[b]fluoranthene	ND	H	0.065	0.014	ug/L		10/09/19 20:51	10/11/19 16:57	1
Benzo[k]fluoranthene	ND	H	0.065	0.0065	ug/L		10/09/19 20:51	10/11/19 16:57	1
Benzo[a]pyrene	ND	H	0.065	0.0065	ug/L		10/09/19 20:51	10/11/19 16:57	1
Indeno[1,2,3-cd]pyrene	ND	H	0.032	0.0065	ug/L		10/09/19 20:51	10/11/19 16:57	1
Dibenz(a,h)anthracene	ND	H	0.065	0.014	ug/L		10/09/19 20:51	10/11/19 16:57	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	59		54 - 120				10/09/19 20:51	10/11/19 16:57	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/13/19 23:09	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150					09/13/19 23:09	1
Trifluorotoluene (Surr)	84		50 - 150					09/13/19 23:09	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		09/20/19 11:09	09/26/19 15:14	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		09/20/19 11:09	09/26/19 15:14	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150				09/20/19 11:09	09/26/19 15:14	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-89089-3

Date Collected: 09/09/19 00:00

Matrix: Water

Date Received: 09/10/19 10:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/13/19 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	106		74 - 123		09/13/19 18:23	1
Toluene-d8 (Surr)	102		79 - 122		09/13/19 18:23	1
4-Bromofluorobenzene (Surr)	100		78 - 119		09/13/19 18:23	1
Dibromofluoromethane (Surr)	99		70 - 120		09/13/19 18:23	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 120		09/13/19 18:23	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/13/19 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150		09/13/19 18:18	1
Trifluorotoluene (Surr)	92		50 - 150		09/13/19 18:18	1

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-311146/7
Matrix: Water
Analysis Batch: 311146

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			09/13/19 17:34	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	109		74 - 123					09/13/19 17:34	1
Toluene-d8 (Surr)	102		79 - 122					09/13/19 17:34	1
4-Bromofluorobenzene (Surr)	102		78 - 119					09/13/19 17:34	1
Dibromofluoromethane (Surr)	94		70 - 120					09/13/19 17:34	1
1,2-Dichloroethane-d4 (Surr)	90		70 - 120					09/13/19 17:34	1

Lab Sample ID: LCS 580-311146/4
Matrix: Water
Analysis Batch: 311146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.06		ug/L		91	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	108		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	105		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	89		70 - 120				

Lab Sample ID: LCSD 580-311146/5
Matrix: Water
Analysis Batch: 311146

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	7.83		ug/L		78	65 - 135	14	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	110		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	105		78 - 119						
Dibromofluoromethane (Surr)	96		70 - 120						
1,2-Dichloroethane-d4 (Surr)	88		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-311290/1-A
Matrix: Water
Analysis Batch: 312694

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.0060	ug/L		09/16/19 10:31	09/29/19 20:24	1
Chrysene	ND		0.060	0.015	ug/L		09/16/19 10:31	09/29/19 20:24	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		09/16/19 10:31	09/29/19 20:24	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		09/16/19 10:31	09/29/19 20:24	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-311290/1-A
Matrix: Water
Analysis Batch: 312694

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311290

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		09/16/19 10:31	09/29/19 20:24	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		09/16/19 10:31	09/29/19 20:24	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		09/16/19 10:31	09/29/19 20:24	1
Surrogate	MB MB		Limits			D	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
Terphenyl-d14	56		54 - 120				09/16/19 10:31	09/29/19 20:24	1

Lab Sample ID: LCS 580-311290/2-A
Matrix: Water
Analysis Batch: 312694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311290

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits	
		Result	Qualifier					
Benzo[a]anthracene	4.00	3.21		ug/L		80	53 - 130	
Chrysene	4.00	2.80		ug/L		70	52 - 125	
Benzo[b]fluoranthene	4.00	3.05		ug/L		76	57 - 132	
Benzo[k]fluoranthene	4.00	2.83		ug/L		71	52 - 132	
Benzo[a]pyrene	4.00	1.07	*	ug/L		27	33 - 129	
Indeno[1,2,3-cd]pyrene	4.00	3.24		ug/L		81	58 - 133	
Dibenz(a,h)anthracene	4.00	3.14		ug/L		78	57 - 140	
Surrogate	LCS LCS		Limits			D	%Rec	Limits
%Recovery	Qualifier							
Terphenyl-d14	59		54 - 120					

Lab Sample ID: LCSD 580-311290/3-A
Matrix: Water
Analysis Batch: 312694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311290

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	Limits	RPD	Limit	
		Result	Qualifier							
Benzo[a]anthracene	4.00	3.06		ug/L		77	53 - 130	5	35	
Chrysene	4.00	2.79		ug/L		70	52 - 125	0	19	
Benzo[b]fluoranthene	4.00	2.87		ug/L		72	57 - 132	6	25	
Benzo[k]fluoranthene	4.00	2.74		ug/L		68	52 - 132	3	22	
Benzo[a]pyrene	4.00	0.361	*	ug/L		9	33 - 129	99	35	
Indeno[1,2,3-cd]pyrene	4.00	2.61		ug/L		65	58 - 133	22	31	
Dibenz(a,h)anthracene	4.00	2.99		ug/L		75	57 - 140	5	31	
Surrogate	LCSD LCSD		Limits			D	%Rec	Limits	RPD	Limit
%Recovery	Qualifier									
Terphenyl-d14	61		54 - 120							

Lab Sample ID: MB 580-313830/1-A
Matrix: Water
Analysis Batch: 314009

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313830

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	0.0154	J	0.060	0.0060	ug/L		10/09/19 20:50	10/11/19 13:04	1
Chrysene	ND		0.060	0.015	ug/L		10/09/19 20:50	10/11/19 13:04	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		10/09/19 20:50	10/11/19 13:04	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		10/09/19 20:50	10/11/19 13:04	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-313830/1-A
Matrix: Water
Analysis Batch: 314009

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313830

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		10/09/19 20:50	10/11/19 13:04	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		10/09/19 20:50	10/11/19 13:04	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		10/09/19 20:50	10/11/19 13:04	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		54 - 120				10/09/19 20:50	10/11/19 13:04	1

Lab Sample ID: LCS 580-313830/2-A
Matrix: Water
Analysis Batch: 314009

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313830

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	4.00	3.70		ug/L		92	53 - 130	4	35
Chrysene	4.00	3.10		ug/L		78	52 - 125	7	19
Benzo[b]fluoranthene	4.00	3.59		ug/L		90	57 - 132	11	25
Benzo[k]fluoranthene	4.00	2.87		ug/L		72	52 - 132	13	22
Benzo[a]pyrene	4.00	2.68		ug/L		67	33 - 129	9	35
Indeno[1,2,3-cd]pyrene	4.00	3.76		ug/L		94	58 - 133	12	31
Dibenz(a,h)anthracene	4.00	3.35		ug/L		84	57 - 140	13	31
LCS LCS									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	57		54 - 120						

Lab Sample ID: LCSD 580-313830/3-A
Matrix: Water
Analysis Batch: 314009

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313830

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	4.00	3.83		ug/L		96	53 - 130	4	35
Chrysene	4.00	3.32		ug/L		83	52 - 125	7	19
Benzo[b]fluoranthene	4.00	4.00		ug/L		100	57 - 132	11	25
Benzo[k]fluoranthene	4.00	3.27		ug/L		82	52 - 132	13	22
Benzo[a]pyrene	4.00	2.92		ug/L		73	33 - 129	9	35
Indeno[1,2,3-cd]pyrene	4.00	4.24		ug/L		106	58 - 133	12	31
Dibenz(a,h)anthracene	4.00	3.79		ug/L		95	57 - 140	13	31
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	58		54 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-311240/7
Matrix: Water
Analysis Batch: 311240

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			09/13/19 17:05	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-311240/7
Matrix: Water
Analysis Batch: 311240

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	92		50 - 150		09/13/19 17:05	1
Trifluorotoluene (Surr)	103		50 - 150		09/13/19 17:05	1

Lab Sample ID: LCS 580-311240/8
Matrix: Water
Analysis Batch: 311240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.830		mg/L		83	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	92		50 - 150
Trifluorotoluene (Surr)	97		50 - 150

Lab Sample ID: LCSD 580-311240/9
Matrix: Water
Analysis Batch: 311240

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.812		mg/L		81	79 - 120	2	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	94		50 - 150
Trifluorotoluene (Surr)	92		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-311854/1-B
Matrix: Water
Analysis Batch: 312386

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311854

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/20/19 11:08	09/26/19 13:45	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/20/19 11:08	09/26/19 13:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	62		50 - 150	09/20/19 11:08	09/26/19 13:45	1

Lab Sample ID: LCS 580-311854/2-B
Matrix: Water
Analysis Batch: 312386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311854

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.47		mg/L		74	50 - 120
Motor Oil (>C24-C36)	2.00	1.70		mg/L		85	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-311854/2-B
Matrix: Water
Analysis Batch: 312386

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311854

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	81		50 - 150

Lab Sample ID: LCSD 580-311854/3-B
Matrix: Water
Analysis Batch: 312386

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311854

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	Limit	Limit
#2 Diesel (C10-C24)	2.00	1.56		mg/L		78	50 - 120	6	26	
Motor Oil (>C24-C36)	2.00	1.75		mg/L		88	64 - 120	3	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	89		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Client Sample ID: Outfall #002

Date Collected: 09/09/19 09:30

Date Received: 09/10/19 10:40

Lab Sample ID: 580-89089-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	311146	09/13/19 19:13	CJ	TAL SEA
Total/NA	Prep	3520C			311290	09/16/19 10:31	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	312694	09/29/19 21:42	JCM	TAL SEA
Total/NA	Prep	3520C	RE		313830	10/09/19 20:51	PRO	TAL SEA
Total/NA	Analysis	8270C SIM	RE	1	314009	10/11/19 16:30	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	311240	09/13/19 22:45	DCV	TAL SEA
Total/NA	Prep	3510C			311854	09/20/19 11:09	PRO	TAL SEA
Total/NA	Cleanup	3630C			312343	09/25/19 17:19	FCG	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	312386	09/26/19 14:52	W1T	TAL SEA

Client Sample ID: DUP-1

Date Collected: 09/09/19 00:00

Date Received: 09/10/19 10:40

Lab Sample ID: 580-89089-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	311146	09/13/19 19:37	CJ	TAL SEA
Total/NA	Prep	3520C			311290	09/16/19 10:31	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	312694	09/29/19 22:09	JCM	TAL SEA
Total/NA	Prep	3520C	RE		313830	10/09/19 20:51	PRO	TAL SEA
Total/NA	Analysis	8270C SIM	RE	1	314009	10/11/19 16:57	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	311240	09/13/19 23:09	DCV	TAL SEA
Total/NA	Prep	3510C			311854	09/20/19 11:09	PRO	TAL SEA
Total/NA	Cleanup	3630C			312343	09/25/19 17:19	FCG	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	312386	09/26/19 15:14	W1T	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 09/09/19 00:00

Date Received: 09/10/19 10:40

Lab Sample ID: 580-89089-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	311146	09/13/19 18:23	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	311240	09/13/19 18:18	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89089-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89089-1	Outfall #002	Water	09/09/19 09:30	09/10/19 10:40	
580-89089-2	DUP-1	Water	09/09/19 00:00	09/10/19 10:40	
580-89089-3	Trip Blank	Water	09/09/19 00:00	09/10/19 10:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client: Arcadis Client Contact: Ophélie Encelle Date: 9-9-2019 Chain of Custody Number: 38465
Address: 1100 Olive Way, Suite 700 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____
City: Seattle State: WA Zip Code: 98101 Sampler: Kilay Zaubi Lab Contact: Elaine Walker Page 1 of 1
Project Name and Location (State): Edmunds Terminal Billing Contact: _____ Analysis (Attach list if more space is needed): _____
Contract/Purchase Order/Quote No.:

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH						
Outfall #002	9-9-19	0930	X				2			8				X	X	X	X	pH = 7.92 *Benzene and cPAHs must have a quantitative less than 1 ug/L *Use standard SGC
DUP-1	9-9-19	-	X				2			8				X	X	X	X	
Trip Blank	-	-	X							6				X	X			



Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT QC Requirements (Specify): _____

1. Relinquished By Sign/Print <u>Kilay Zaubi</u>	Date <u>9-9-19</u>	Time <u>1040</u>	1. Received By Sign/Print <u>B. Gall</u>	Date <u>9-9-19</u>	Time <u>1040</u>
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments: _____ Therm. ID: AZ Cor: 13.3 ° Unc: 13.6 °
Cooler Dsc: SAL BLUE FedEx: _____
Packing: Bubble UPS: _____
Cust. Seal: Yes No * Lab Cour: +
Blue Ice, Yes Dry, None Other: 10/14/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-89089-1

Login Number: 89089

List Number: 1

Creator: McMorris, Regan

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89480-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
10/8/2019 5:36:57 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Job ID: 580-89480-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-89480-1

Comments

No additional comments.

Receipt

The samples were received on 9/24/2019 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.1° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89480-1

Date Collected: 09/23/19 19:30

Matrix: Water

Date Received: 09/24/19 10:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/01/19 20:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					10/01/19 20:06	1
Toluene-d8 (Surr)	105		79 - 122					10/01/19 20:06	1
4-Bromofluorobenzene (Surr)	98		78 - 119					10/01/19 20:06	1
Dibromofluoromethane (Surr)	95		70 - 120					10/01/19 20:06	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					10/01/19 20:06	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		09/30/19 13:12	10/04/19 16:45	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		09/30/19 13:12	10/04/19 16:45	1
Benzo[b]fluoranthene	ND		0.056	0.012	ug/L		09/30/19 13:12	10/04/19 16:45	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		09/30/19 13:12	10/04/19 16:45	1
Chrysene	ND		0.11	0.018	ug/L		09/30/19 13:12	10/04/19 16:45	1
Dibenz(a,h)anthracene	ND		0.11	0.029	ug/L		09/30/19 13:12	10/04/19 16:45	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		09/30/19 13:12	10/04/19 16:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		53 - 120				09/30/19 13:12	10/04/19 16:45	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/30/19 19:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		50 - 150					09/30/19 19:14	1
Trifluorotoluene (Surr)	108		50 - 150					09/30/19 19:14	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		10/01/19 13:34	10/04/19 18:54	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		10/01/19 13:34	10/04/19 18:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150				10/01/19 13:34	10/04/19 18:54	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-89480-2

Date Collected: 09/23/19 00:01

Matrix: Water

Date Received: 09/24/19 10:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/01/19 15:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123					10/01/19 15:10	1
Toluene-d8 (Surr)	101		79 - 122					10/01/19 15:10	1
4-Bromofluorobenzene (Surr)	99		78 - 119					10/01/19 15:10	1
Dibromofluoromethane (Surr)	101		70 - 120					10/01/19 15:10	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 120					10/01/19 15:10	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			09/30/19 15:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150					09/30/19 15:11	1
Trifluorotoluene (Surr)	58		50 - 150					09/30/19 15:11	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-312890/7

Matrix: Water

Analysis Batch: 312890

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/01/19 12:41	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123					10/01/19 12:41	1
Toluene-d8 (Surr)	100		79 - 122					10/01/19 12:41	1
4-Bromofluorobenzene (Surr)	100		78 - 119					10/01/19 12:41	1
Dibromofluoromethane (Surr)	102		70 - 120					10/01/19 12:41	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120					10/01/19 12:41	1

Lab Sample ID: LCS 580-312890/4

Matrix: Water

Analysis Batch: 312890

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.4		ug/L		104	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	98		74 - 123				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	101		78 - 119				
Dibromofluoromethane (Surr)	101		70 - 120				
1,2-Dichloroethane-d4 (Surr)	101		70 - 120				

Lab Sample ID: LCSD 580-312890/5

Matrix: Water

Analysis Batch: 312890

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.3		ug/L		103	65 - 135	2	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	98		74 - 123						
Toluene-d8 (Surr)	99		79 - 122						
4-Bromofluorobenzene (Surr)	102		78 - 119						
Dibromofluoromethane (Surr)	101		70 - 120						
1,2-Dichloroethane-d4 (Surr)	102		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-312768/1-A

Matrix: Water

Analysis Batch: 313284

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 312768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/30/19 13:12	10/04/19 11:49	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		09/30/19 13:12	10/04/19 11:49	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		09/30/19 13:12	10/04/19 11:49	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/30/19 13:12	10/04/19 11:49	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-312768/1-A
Matrix: Water
Analysis Batch: 313284

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 312768

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		09/30/19 13:12	10/04/19 11:49	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		09/30/19 13:12	10/04/19 11:49	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/30/19 13:12	10/04/19 11:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	96		53 - 120				09/30/19 13:12	10/04/19 11:49	1

Lab Sample ID: LCS 580-312768/2-A
Matrix: Water
Analysis Batch: 313284

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 312768

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.63		ug/L		91	61 - 129
Benzo[a]pyrene	4.00	3.37		ug/L		84	56 - 130
Benzo[b]fluoranthene	4.00	3.70		ug/L		92	53 - 133
Benzo[k]fluoranthene	4.00	3.56		ug/L		89	51 - 132
Chrysene	4.00	3.55		ug/L		89	47 - 126
Dibenz(a,h)anthracene	4.00	4.08		ug/L		102	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.96		ug/L		99	56 - 135
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	81		53 - 120				

Lab Sample ID: LCSD 580-312768/3-A
Matrix: Water
Analysis Batch: 313284

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 312768

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	3.37		ug/L		84	61 - 129	7	31
Benzo[a]pyrene	4.00	2.99		ug/L		75	56 - 130	12	27
Benzo[b]fluoranthene	4.00	3.64		ug/L		91	53 - 133	2	25
Benzo[k]fluoranthene	4.00	3.27		ug/L		82	51 - 132	8	25
Chrysene	4.00	3.51		ug/L		88	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	3.86		ug/L		97	60 - 133	5	25
Indeno[1,2,3-cd]pyrene	4.00	3.81		ug/L		95	56 - 135	4	24
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	76		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-312771/11
Matrix: Water
Analysis Batch: 312771

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			09/30/19 14:30	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-312771/11

Matrix: Water

Analysis Batch: 312771

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	91		50 - 150		09/30/19 14:30	1
Trifluorotoluene (Surr)	106		50 - 150		09/30/19 14:30	1

Lab Sample ID: LCS 580-312771/9

Matrix: Water

Analysis Batch: 312771

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		50 - 150
Trifluorotoluene (Surr)	102		50 - 150

Lab Sample ID: LCSD 580-312771/10

Matrix: Water

Analysis Batch: 312771

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-312920/1-B

Matrix: Water

Analysis Batch: 313346

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 312920

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/01/19 13:34	10/04/19 17:13	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/01/19 13:34	10/04/19 17:13	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	79		50 - 150	10/01/19 13:34	10/04/19 17:13	1

Lab Sample ID: LCS 580-312920/2-B

Matrix: Water

Analysis Batch: 313346

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 312920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.96		mg/L		98	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-312920/2-B

Matrix: Water

Analysis Batch: 313346

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 312920

Surrogate	LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	69		50 - 150

Lab Sample ID: LCSD 580-312920/3-B

Matrix: Water

Analysis Batch: 313346

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 312920

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.87		mg/L		93	50 - 120	10	26	
Motor Oil (>C24-C36)	2.00	2.20		mg/L		110	64 - 120	12	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	71		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89480-1

Date Collected: 09/23/19 19:30

Matrix: Water

Date Received: 09/24/19 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	312890	10/01/19 20:06	TL1	TAL SEA
Total/NA	Prep	3510C			312768	09/30/19 13:12	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	313284	10/04/19 16:45	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	312771	09/30/19 19:14	DCV	TAL SEA
Total/NA	Prep	3510C			312920	10/01/19 13:34		TAL SEA
Total/NA	Cleanup	3630C			313301	10/04/19 11:28	FCG	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	313346	10/04/19 18:54	W1T	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-89480-2

Date Collected: 09/23/19 00:01

Matrix: Water

Date Received: 09/24/19 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	312890	10/01/19 15:10	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	312771	09/30/19 15:11	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89480-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89480-1	Outfall #002	Water	09/23/19 19:30	09/24/19 10:40	
580-89480-2	Trip Blank	Water	09/23/19 00:01	09/24/19 10:40	

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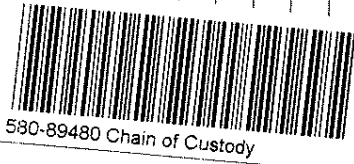
10

11

Client Arcadis	Client Contact Ophélie Encelle	Date 9-23-2019	Chain of Custody Number 35255
Address 1100 Olive Way, Suite 800	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed) Benzene EPA 624 NMTPH-GX NMTPH-DX WISGC CPAHS 8270 C	Loc: 580 89480
Project Name and Location (State) Edmonds Terminal			Billing Contact			Spe Con

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							pH	Other									
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH												
Outfall #002	9-23-19	1930		X						2				8		X	X	X	X				pH = 7.38	
TRIP BLANK	—	—		X										6		X	X							*Benzene and CPAHS must have a quantitative less than 1ug/L
																								*Use standard SGC



Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other STAT	QC Requirements (Specify)
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Sign/Print KCZ Kiley Zaubi	Date 9-24-19	Time 0930	1. Received By Sign/Print B. Gall B. Gall SIZATA	Date 9-24-19	Time 1040
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Therm. ID: **IR7** Cor: **6.1** ° Unc: **6.4** °
Cooler Desc: **SMS BLW**
Packing: **ISW** FedEx: _____
Cust. Seal: Yes No UPS: _____
Blue Ice, Dry, None Lab Cour: **X**
Other: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-89480-1

Login Number: 89480

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89775-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

Kristine D. Allen

Authorized for release by:
10/15/2019 3:40:53 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Job ID: 580-89775-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-89775-1

Comments

No additional comments.

Receipt

The samples were received on 10/4/2019 11:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method NWTPH-Gx: The continuing calibration verification (CCV) associated with batch 580-314045 recovered above the upper control limit for 4-Bromofluorobenzene (Surr). The samples associated with this CCV met the recovery acceptance criteria for the surrogate 4-Bromofluorobenzene; therefore, the data have been reported.

Method NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch analytical batch 580-314045 recovered outside the 10% RPD control limits for the following analytes: Gasoline. Recovery limits for both the LCS and LCSD met the acceptance criteria; therefore the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89775-1

Date Collected: 10/04/19 09:30

Matrix: Water

Date Received: 10/04/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/08/19 02:47	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					10/08/19 02:47	1
Toluene-d8 (Surr)	101		79 - 122					10/08/19 02:47	1
4-Bromofluorobenzene (Surr)	101		78 - 119					10/08/19 02:47	1
Dibromofluoromethane (Surr)	97		70 - 120					10/08/19 02:47	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 120					10/08/19 02:47	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		10/07/19 09:23	10/08/19 18:05	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		10/07/19 09:23	10/08/19 18:05	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		10/07/19 09:23	10/08/19 18:05	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		10/07/19 09:23	10/08/19 18:05	1
Chrysene	ND		0.11	0.017	ug/L		10/07/19 09:23	10/08/19 18:05	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L		10/07/19 09:23	10/08/19 18:05	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		10/07/19 09:23	10/08/19 18:05	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	62		53 - 120				10/07/19 09:23	10/08/19 18:05	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*	0.25	0.10	mg/L			10/11/19 16:35	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		50 - 150					10/11/19 16:35	1
Trifluorotoluene (Surr)	109		50 - 150					10/11/19 16:35	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		10/09/19 03:50	10/09/19 14:56	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		10/09/19 03:50	10/09/19 14:56	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	68		50 - 150				10/09/19 03:50	10/09/19 14:56	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-89775-2

Date Collected: 10/04/19 00:01

Matrix: Water

Date Received: 10/04/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/08/19 01:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					10/08/19 01:57	1
Toluene-d8 (Surr)	101		79 - 122					10/08/19 01:57	1
4-Bromofluorobenzene (Surr)	101		78 - 119					10/08/19 01:57	1
Dibromofluoromethane (Surr)	96		70 - 120					10/08/19 01:57	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					10/08/19 01:57	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*	0.25	0.10	mg/L			10/11/19 15:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		50 - 150					10/11/19 15:23	1
Trifluorotoluene (Surr)	102		50 - 150					10/11/19 15:23	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-313561/6
Matrix: Water
Analysis Batch: 313561

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/08/19 01:07	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					10/08/19 01:07	1
Toluene-d8 (Surr)	102		79 - 122					10/08/19 01:07	1
4-Bromofluorobenzene (Surr)	101		78 - 119					10/08/19 01:07	1
Dibromofluoromethane (Surr)	97		70 - 120					10/08/19 01:07	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 120					10/08/19 01:07	1

Lab Sample ID: LCS 580-313561/3
Matrix: Water
Analysis Batch: 313561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.57		ug/L		96	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	101		74 - 123				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	101		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	102		70 - 120				

Lab Sample ID: LCSD 580-313561/4
Matrix: Water
Analysis Batch: 313561

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	8.90		ug/L		89	65 - 135	7	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	103		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	104		78 - 119						
Dibromofluoromethane (Surr)	100		70 - 120						
1,2-Dichloroethane-d4 (Surr)	103		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-313441/1-A
Matrix: Water
Analysis Batch: 313601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313441

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/07/19 09:23	10/08/19 14:35	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		10/07/19 09:23	10/08/19 14:35	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		10/07/19 09:23	10/08/19 14:35	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/07/19 09:23	10/08/19 14:35	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-313441/1-A

Matrix: Water

Analysis Batch: 313601

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 313441

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		10/07/19 09:23	10/08/19 14:35	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		10/07/19 09:23	10/08/19 14:35	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/07/19 09:23	10/08/19 14:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	72		53 - 120				10/07/19 09:23	10/08/19 14:35	1

Lab Sample ID: LCS 580-313441/2-A

Matrix: Water

Analysis Batch: 313601

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 313441

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.48		ug/L		87	61 - 129
Benzo[a]pyrene	4.00	3.27		ug/L		82	56 - 130
Benzo[b]fluoranthene	4.00	3.63		ug/L		91	53 - 133
Benzo[k]fluoranthene	4.00	3.18		ug/L		79	51 - 132
Chrysene	4.00	3.21		ug/L		80	47 - 126
Dibenz(a,h)anthracene	4.00	3.41		ug/L		85	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.59		ug/L		90	56 - 135
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	64		53 - 120				

Lab Sample ID: LCSD 580-313441/3-A

Matrix: Water

Analysis Batch: 313601

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 313441

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	3.65		ug/L		91	61 - 129	5	31
Benzo[a]pyrene	4.00	3.50		ug/L		87	56 - 130	7	27
Benzo[b]fluoranthene	4.00	3.03		ug/L		76	53 - 133	18	25
Benzo[k]fluoranthene	4.00	3.78		ug/L		95	51 - 132	17	25
Chrysene	4.00	3.37		ug/L		84	47 - 126	5	23
Dibenz(a,h)anthracene	4.00	3.56		ug/L		89	60 - 133	4	25
Indeno[1,2,3-cd]pyrene	4.00	3.84		ug/L		96	56 - 135	7	24
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	66		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-314045/5

Matrix: Water

Analysis Batch: 314045

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			10/11/19 14:10	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-314045/5
Matrix: Water
Analysis Batch: 314045

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	115		50 - 150		10/11/19 14:10	1
Trifluorotoluene (Surr)	96		50 - 150		10/11/19 14:10	1

Lab Sample ID: LCS 580-314045/6
Matrix: Water
Analysis Batch: 314045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	93		50 - 150

Lab Sample ID: LCSD 580-314045/7
Matrix: Water
Analysis Batch: 314045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	117		50 - 150
Trifluorotoluene (Surr)	96		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-313691/1-B
Matrix: Water
Analysis Batch: 313742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313691

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/09/19 03:50	10/09/19 12:42	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/09/19 03:50	10/09/19 12:42	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	78		50 - 150	10/09/19 03:50	10/09/19 12:42	1

Lab Sample ID: LCS 580-313691/2-B
Matrix: Water
Analysis Batch: 313742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	2.11		mg/L		105	64 - 120

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-313691/2-B
Matrix: Water
Analysis Batch: 313742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313691

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: LCSD 580-313691/3-B
Matrix: Water
Analysis Batch: 313742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313691

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	RPD	Limit
#2 Diesel (C10-C24)	2.00	2.02		mg/L		101	50 - 120	4	26	
Motor Oil (>C24-C36)	2.00	2.20		mg/L		110	64 - 120	4	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	92		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89775-1

Date Collected: 10/04/19 09:30

Matrix: Water

Date Received: 10/04/19 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	313561	10/08/19 02:47	APR	TAL SEA
Total/NA	Prep	3510C			313441	10/07/19 09:23	T1L	TAL SEA
Total/NA	Analysis	8270C SIM		1	313601	10/08/19 18:05	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314045	10/11/19 16:35	BS	TAL SEA
Total/NA	Prep	3510C			313691	10/09/19 03:50		TAL SEA
Total/NA	Cleanup	3630C			313703	10/09/19 08:37		TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	313742	10/09/19 14:56	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-89775-2

Date Collected: 10/04/19 00:01

Matrix: Water

Date Received: 10/04/19 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	313561	10/08/19 01:57	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314045	10/11/19 15:23	BS	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-89775-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89775-1	Outfall #002	Water	10/04/19 09:30	10/04/19 11:15	
580-89775-2	Trip Blank	Water	10/04/19 00:01	10/04/19 11:15	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

Rush
 Short Hold

Chain of Custody Record

Client: Arccadis Client Contact: Ophele Enelle Date: 10/14/19 Chain of Custody Number: 38463

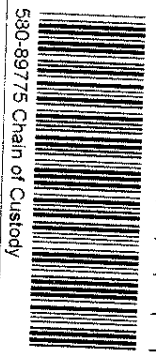
Address: 1100 Olive Way, Suite 200 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____ Page: 1 of 1

City: Seattle State: WA Zip Code: 98101 Sampler: Kiley Zanki Lab Contact: Elvive Walker

Project Name and Location (State): Edmonds Terminal Billing Contact: _____

Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives					Analysis (Attach list if more space is needed)	Loc: 580 89775	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl			NaOH
<u>OUT FALL WOODZ</u>	<u>10-14-19</u>	<u>0930</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Benzene EPA 624	<u>pH = 8.15</u>
<u>TAP BLANK</u>	<u>---</u>	<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> NWPH-GX	
												<input checked="" type="checkbox"/> NWPH-DX W/SGC	<u>* Benzene and CP4HS must have a quatative less than 1 ug/l</u>
												<input checked="" type="checkbox"/> CP4HS 8270 C6	
													<u>* Use Standard</u>
													<u>SGC</u>



Turn Around Time Required (business days):
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT

1. Relinquished By Sign/Print: Kiley Zanki Date: 10-14-19 Time: 1115

2. Relinquished By Sign/Print: _____ Date: _____ Time: _____

3. Relinquished By Sign/Print: _____ Date: _____ Time: _____

Comments: _____

Therm. ID: ETT Cor: 53 ° Inc: 56 °
 Cooler Disc: SN1 012
 Packing: 6-6
 Cust. Seal: Yes No
 Blue Ice Dry: None
 FedEx: _____
 UPS: _____
 Lab Cour: +
 Other: _____

TAL-9274-580 (0210)

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-89775-1

Login Number: 89775

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89957-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
10/22/2019 4:04:40 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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results through
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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Job ID: 580-89957-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-89957-1

Receipt

Three samples were received on 10/11/2019 11:26 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

GC/MS VOA

Method 624.1: Surrogate recovery for the following sample was outside the upper control limit: Dup-1 (580-89957-2). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page..



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89957-1

Date Collected: 10/10/19 00:01

Matrix: Water

Date Received: 10/11/19 11:26

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/14/19 16:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		10/14/19 16:17	1
Toluene-d8 (Surr)	102		79 - 122		10/14/19 16:17	1
4-Bromofluorobenzene (Surr)	92		78 - 119		10/14/19 16:17	1
Dibromofluoromethane (Surr)	102		70 - 120		10/14/19 16:17	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		10/14/19 16:17	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		10/14/19 09:56	10/18/19 02:13	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		10/14/19 09:56	10/18/19 02:13	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		10/14/19 09:56	10/18/19 02:13	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		10/14/19 09:56	10/18/19 02:13	1
Chrysene	ND		0.11	0.017	ug/L		10/14/19 09:56	10/18/19 02:13	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L		10/14/19 09:56	10/18/19 02:13	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		10/14/19 09:56	10/18/19 02:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	71		53 - 120	10/14/19 09:56	10/18/19 02:13	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/12/19 17:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		10/12/19 17:45	1
Trifluorotoluene (Surr)	115		50 - 150		10/12/19 17:45	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		10/20/19 10:23	10/21/19 18:22	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		10/20/19 10:23	10/21/19 18:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150	10/20/19 10:23	10/21/19 18:22	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Client Sample ID: Dup-1
Date Collected: 10/10/19 00:01
Date Received: 10/11/19 11:26

Lab Sample ID: 580-89957-2
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/14/19 16:42	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	115		74 - 123					10/14/19 16:42	1
Toluene-d8 (Surr)	154	X	79 - 122					10/14/19 16:42	1
4-Bromofluorobenzene (Surr)	97		78 - 119					10/14/19 16:42	1
Dibromofluoromethane (Surr)	147	X	70 - 120					10/14/19 16:42	1
1,2-Dichloroethane-d4 (Surr)	153	X	70 - 120					10/14/19 16:42	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		10/14/19 09:56	10/18/19 02:37	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		10/14/19 09:56	10/18/19 02:37	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		10/14/19 09:56	10/18/19 02:37	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		10/14/19 09:56	10/18/19 02:37	1
Chrysene	ND		0.10	0.017	ug/L		10/14/19 09:56	10/18/19 02:37	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		10/14/19 09:56	10/18/19 02:37	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		10/14/19 09:56	10/18/19 02:37	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	71		53 - 120				10/14/19 09:56	10/18/19 02:37	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/12/19 18:16	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		50 - 150					10/12/19 18:16	1
Trifluorotoluene (Surr)	117		50 - 150					10/12/19 18:16	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		10/20/19 10:23	10/21/19 18:45	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		10/20/19 10:23	10/21/19 18:45	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150				10/20/19 10:23	10/21/19 18:45	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-89957-3

Date Collected: 10/10/19 00:01

Matrix: Water

Date Received: 10/11/19 11:26

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/14/19 14:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		10/14/19 14:13	1
Toluene-d8 (Surr)	102		79 - 122		10/14/19 14:13	1
4-Bromofluorobenzene (Surr)	97		78 - 119		10/14/19 14:13	1
Dibromofluoromethane (Surr)	96		70 - 120		10/14/19 14:13	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		10/14/19 14:13	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/12/19 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150		10/12/19 17:15	1
Trifluorotoluene (Surr)	115		50 - 150		10/12/19 17:15	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-314208/6
Matrix: Water
Analysis Batch: 314208

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/14/19 13:23	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	100		74 - 123					10/14/19 13:23	1
Toluene-d8 (Surr)	103		79 - 122					10/14/19 13:23	1
4-Bromofluorobenzene (Surr)	98		78 - 119					10/14/19 13:23	1
Dibromofluoromethane (Surr)	96		70 - 120					10/14/19 13:23	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120					10/14/19 13:23	1

Lab Sample ID: LCS 580-314208/3
Matrix: Water
Analysis Batch: 314208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.4		ug/L		104	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	100		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	100		78 - 119				
Dibromofluoromethane (Surr)	97		70 - 120				
1,2-Dichloroethane-d4 (Surr)	99		70 - 120				

Lab Sample ID: LCSD 580-314208/4
Matrix: Water
Analysis Batch: 314208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.0		ug/L		100	65 - 135	4	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	100		74 - 123						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 119						
Dibromofluoromethane (Surr)	98		70 - 120						
1,2-Dichloroethane-d4 (Surr)	100		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-314161/1-A
Matrix: Water
Analysis Batch: 314589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/14/19 09:56	10/17/19 17:46	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		10/14/19 09:56	10/17/19 17:46	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		10/14/19 09:56	10/17/19 17:46	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/14/19 09:56	10/17/19 17:46	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-314161/1-A
Matrix: Water
Analysis Batch: 314589

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		10/14/19 09:56	10/17/19 17:46	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		10/14/19 09:56	10/17/19 17:46	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/14/19 09:56	10/17/19 17:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		53 - 120	10/14/19 09:56	10/17/19 17:46	1

Lab Sample ID: LCS 580-314161/2-A
Matrix: Water
Analysis Batch: 314589

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	4.11		ug/L		103	61 - 129
Benzo[a]pyrene	4.00	3.60		ug/L		90	56 - 130
Benzo[b]fluoranthene	4.00	4.26		ug/L		106	53 - 133
Benzo[k]fluoranthene	4.00	3.99		ug/L		100	51 - 132
Chrysene	4.00	4.05		ug/L		101	47 - 126
Dibenz(a,h)anthracene	4.00	4.10		ug/L		102	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.94		ug/L		98	56 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	78		53 - 120

Lab Sample ID: LCSD 580-314161/3-A
Matrix: Water
Analysis Batch: 314589

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314161

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.89		ug/L		97	61 - 129	6	31
Benzo[a]pyrene	4.00	3.62		ug/L		91	56 - 130	1	27
Benzo[b]fluoranthene	4.00	3.77		ug/L		94	53 - 133	12	25
Benzo[k]fluoranthene	4.00	4.25		ug/L		106	51 - 132	6	25
Chrysene	4.00	4.14		ug/L		103	47 - 126	2	23
Dibenz(a,h)anthracene	4.00	4.03		ug/L		101	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.94		ug/L		99	56 - 135	0	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	77		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-314106/5
Matrix: Water
Analysis Batch: 314106

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/12/19 14:42	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-314106/5
Matrix: Water
Analysis Batch: 314106

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	95		50 - 150		10/12/19 14:42	1
Trifluorotoluene (Surr)	116		50 - 150		10/12/19 14:42	1

Lab Sample ID: LCS 580-314106/6
Matrix: Water
Analysis Batch: 314106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.947		mg/L		95	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		50 - 150
Trifluorotoluene (Surr)	110		50 - 150

Lab Sample ID: LCSD 580-314106/7
Matrix: Water
Analysis Batch: 314106

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.958		mg/L		96	79 - 120	1	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		50 - 150
Trifluorotoluene (Surr)	107		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-314690/1-B
Matrix: Water
Analysis Batch: 314768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314690

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/20/19 10:23	10/21/19 15:24	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/20/19 10:23	10/21/19 15:24	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	91		50 - 150	10/20/19 10:23	10/21/19 15:24	1

Lab Sample ID: LCS 580-314690/2-B
Matrix: Water
Analysis Batch: 314768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314690

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.74		mg/L		87	50 - 120
Motor Oil (>C24-C36)	2.00	1.84		mg/L		92	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-314690/2-B
Matrix: Water
Analysis Batch: 314768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314690

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	97		50 - 150

Lab Sample ID: LCSD 580-314690/3-B
Matrix: Water
Analysis Batch: 314768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314690

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i>	<i>RPD</i>	<i>RPD</i>	<i>Limit</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>RPD</i>		
#2 Diesel (C10-C24)	2.00	1.75		mg/L		87	50 - 120	0		26
Motor Oil (>C24-C36)	2.00	1.87		mg/L		94	64 - 120	2		24

	<i>LCSD</i>	<i>LCSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	100		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-89957-1

Date Collected: 10/10/19 00:01

Matrix: Water

Date Received: 10/11/19 11:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	314208	10/14/19 16:17	TL1	TAL SEA
Total/NA	Prep	3510C			314161	10/14/19 09:56	T1L	TAL SEA
Total/NA	Analysis	8270C SIM		1	314589	10/18/19 02:13	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314106	10/12/19 17:45	BS	TAL SEA
Total/NA	Prep	3510C			314690	10/20/19 10:23	T1L	TAL SEA
Total/NA	Cleanup	3630C			314691	10/20/19 12:14	T1L	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	314768	10/21/19 18:22	CJ	TAL SEA

Client Sample ID: Dup-1

Lab Sample ID: 580-89957-2

Date Collected: 10/10/19 00:01

Matrix: Water

Date Received: 10/11/19 11:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	314208	10/14/19 16:42	TL1	TAL SEA
Total/NA	Prep	3510C			314161	10/14/19 09:56	T1L	TAL SEA
Total/NA	Analysis	8270C SIM		1	314589	10/18/19 02:37	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314106	10/12/19 18:16	BS	TAL SEA
Total/NA	Prep	3510C			314690	10/20/19 10:23	T1L	TAL SEA
Total/NA	Cleanup	3630C			314691	10/20/19 12:14	T1L	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	314768	10/21/19 18:45	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-89957-3

Date Collected: 10/10/19 00:01

Matrix: Water

Date Received: 10/11/19 11:26

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	314208	10/14/19 14:13	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314106	10/12/19 17:15	BS	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-89957-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89957-1	Outfall #002	Water	10/10/19 00:01	10/11/19 11:26	
580-89957-2	Dup-1	Water	10/10/19 00:01	10/11/19 11:26	
580-89957-3	Trip Blank	Water	10/10/19 00:01	10/11/19 11:26	

- 1
- 2
- 3
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- 5
- 6
- 7
- 8
- 9
- 10
- 11

TestAmerica

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TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

Loc: 580
89957

Rush
 Short Hold

Chain of Custody Record

Client Arcadis	Client Contact Ophélie Encelle	Date 10-10-2019	Chain of Custody Number 38449
Address 1100 Olive Way, Suite 800		Telephone Number (Area Code)/Fax Number	Page <u>1</u> of <u>1</u>

City Seattle	State WA	Zip Code 98101	Sampler Kiley Zauri	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)
Project Name and Location (State) Edmonds Terminal			Billing Contact		

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH				
Outfall #002	10-10-19			X			2			8						pH = 7.88
DUP-1	10-10-19	-		X			2			8						*Benzene and
TRIP BLANK	-	-		X						6						cPAHs must have
																a quantitative
																less than 1 ug/L
																*Use standard
																SGC

Benzene EPA 624
with PH 6x
with DR-1 SGC
cPAHs 8270c



Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input checked="" type="checkbox"/> Other STAT	QC Requirements (Specify)
1. Relinquished By Sign/Print Ophélie Encelle	1. Received By Sign/Print B. Gall SKATA
Date 10/11/19	Date 10.11.19
Time 11:26	Time 1126
2. Relinquished By Sign/Print	2. Received By Sign/Print
3. Relinquished By Sign/Print	3. Received By Sign/Print

Therm. ID: **129** Cor: **3.7** Unc: **4.0**

Cooler Desc: **Ly Blue** FedEx: _____

Packing: **Bub** UPS: _____

Cust. Seal: Yes No Lab Cour: **F**

Blue Ice: Dry, None Other: _____ -8274-022/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-89957-1

Login Number: 89957

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90144-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
11/12/2019 3:25:41 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Job ID: 580-90144-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-90144-1

Receipt

Two samples were received on 10/18/2019 11:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received completed. While analysis are listed on the COC, there are no specific analysis designated for any samples. Samples were logged against previous jobs.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method NWTPH-Dx: Outfall #002 (580-90144-1) was re-extracted outside of holding time due to QC failures in the initial extraction. For this sample, both sets of data are reported.

Method NWTPH-Dx: Surrogate recoveries and MS/MSD precision for the following parent/MS/MSD Outfall #002 (580-90144-1), Outfall #002 (580-90144-1[MS]) and Outfall #002 (580-90144-1[MSD]) were outside control limits. The parent was re-extracted outside of holding time. There was insufficient volume of the MS/MSD to perform a re-extraction. Both sets of data are reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90144-1

Date Collected: 10/17/19 11:30

Matrix: Water

Date Received: 10/18/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/21/19 17:38	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					10/21/19 17:38	1
Toluene-d8 (Surr)	104		79 - 122					10/21/19 17:38	1
4-Bromofluorobenzene (Surr)	94		78 - 119					10/21/19 17:38	1
Dibromofluoromethane (Surr)	98		70 - 120					10/21/19 17:38	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 120					10/21/19 17:38	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.066	0.0066	ug/L		10/23/19 11:34	10/25/19 20:46	1
Chrysene	ND		0.066	0.016	ug/L		10/23/19 11:34	10/25/19 20:46	1
Benzo[b]fluoranthene	ND		0.066	0.014	ug/L		10/23/19 11:34	10/25/19 20:46	1
Benzo[k]fluoranthene	ND		0.066	0.0066	ug/L		10/23/19 11:34	10/25/19 20:46	1
Benzo[a]pyrene	ND		0.066	0.0066	ug/L		10/23/19 11:34	10/25/19 20:46	1
Indeno[1,2,3-cd]pyrene	ND		0.033	0.0066	ug/L		10/23/19 11:34	10/25/19 20:46	1
Dibenz(a,h)anthracene	ND		0.066	0.014	ug/L		10/23/19 11:34	10/25/19 20:46	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	69		54 - 120				10/23/19 11:34	10/25/19 20:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/22/19 15:27	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		50 - 150					10/22/19 15:27	1
Trifluorotoluene (Surr)	91		50 - 150					10/22/19 15:27	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	F2 F1	0.12	0.068	mg/L		10/31/19 09:00	11/05/19 16:34	1
#2 Diesel (C10-C24)	0.17	H	0.11	0.067	mg/L		11/08/19 08:56	11/10/19 00:46	1
Motor Oil (>C24-C36)	ND	F2 F1	0.37	0.10	mg/L		10/31/19 09:00	11/05/19 16:34	1
Motor Oil (>C24-C36)	0.11	J H	0.36	0.099	mg/L		11/08/19 08:56	11/10/19 00:46	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	45	X	50 - 150				10/31/19 09:00	11/05/19 16:34	1
o-Terphenyl	80		50 - 150				11/08/19 08:56	11/10/19 00:46	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-90144-2

Date Collected: 10/17/19 11:35

Matrix: Water

Date Received: 10/18/19 11:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/21/19 16:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	89		74 - 123		10/21/19 16:48	1
Toluene-d8 (Surr)	104		79 - 122		10/21/19 16:48	1
4-Bromofluorobenzene (Surr)	93		78 - 119		10/21/19 16:48	1
Dibromofluoromethane (Surr)	98		70 - 120		10/21/19 16:48	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		10/21/19 16:48	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/22/19 13:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150		10/22/19 13:03	1
Trifluorotoluene (Surr)	99		50 - 150		10/22/19 13:03	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-314785/13
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/21/19 15:32	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	90		74 - 123					10/21/19 15:32	1
Toluene-d8 (Surr)	104		79 - 122					10/21/19 15:32	1
4-Bromofluorobenzene (Surr)	94		78 - 119					10/21/19 15:32	1
Dibromofluoromethane (Surr)	97		70 - 120					10/21/19 15:32	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120					10/21/19 15:32	1

Lab Sample ID: LCS 580-314785/14
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.94		ug/L		89	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	92		74 - 123				
Toluene-d8 (Surr)	104		79 - 122				
4-Bromofluorobenzene (Surr)	93		78 - 119				
Dibromofluoromethane (Surr)	96		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-314785/15
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	8.69		ug/L		87	65 - 135	3	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	91		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 119						
Dibromofluoromethane (Surr)	96		70 - 120						
1,2-Dichloroethane-d4 (Surr)	97		70 - 120						

Lab Sample ID: 580-90144-1 MS
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		10.0	9.35		ug/L		94	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Trifluorotoluene (Surr)	91		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-90144-1 MS
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		78 - 119
Dibromofluoromethane (Surr)	98		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Lab Sample ID: 580-90144-1 MSD
Matrix: Water
Analysis Batch: 314785

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		10.0	9.83		ug/L		98	65 - 135	5	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	91		74 - 123
Toluene-d8 (Surr)	105		79 - 122
4-Bromofluorobenzene (Surr)	94		78 - 119
Dibromofluoromethane (Surr)	96		70 - 120
1,2-Dichloroethane-d4 (Surr)	97		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-314954/1-A
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314954

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.0060	ug/L		10/23/19 11:34	10/25/19 15:59	1
Chrysene	ND		0.060	0.015	ug/L		10/23/19 11:34	10/25/19 15:59	1
Benzo[b]fluoranthene	ND		0.060	0.013	ug/L		10/23/19 11:34	10/25/19 15:59	1
Benzo[k]fluoranthene	ND		0.060	0.0060	ug/L		10/23/19 11:34	10/25/19 15:59	1
Benzo[a]pyrene	ND		0.060	0.0060	ug/L		10/23/19 11:34	10/25/19 15:59	1
Indeno[1,2,3-cd]pyrene	ND		0.030	0.0060	ug/L		10/23/19 11:34	10/25/19 15:59	1
Dibenz(a,h)anthracene	ND		0.060	0.013	ug/L		10/23/19 11:34	10/25/19 15:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	72		54 - 120	10/23/19 11:34	10/25/19 15:59	1

Lab Sample ID: LCS 580-314954/2-A
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314954

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	3.22		ug/L		80	53 - 130
Chrysene	4.00	2.73		ug/L		68	52 - 125
Benzo[b]fluoranthene	4.00	3.01		ug/L		75	57 - 132
Benzo[k]fluoranthene	4.00	2.59		ug/L		65	52 - 132
Benzo[a]pyrene	4.00	2.43		ug/L		61	33 - 129
Indeno[1,2,3-cd]pyrene	4.00	3.69		ug/L		92	58 - 133
Dibenz(a,h)anthracene	4.00	3.25		ug/L		81	57 - 140

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-314954/2-A
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314954

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	74		54 - 120

Lab Sample ID: LCSD 580-314954/3-A
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314954

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.04		ug/L		76	53 - 130	6	35
Chrysene	4.00	2.58		ug/L		65	52 - 125	6	19
Benzo[b]fluoranthene	4.00	2.87		ug/L		72	57 - 132	5	25
Benzo[k]fluoranthene	4.00	2.36		ug/L		59	52 - 132	9	22
Benzo[a]pyrene	4.00	2.23		ug/L		56	33 - 129	9	35
Indeno[1,2,3-cd]pyrene	4.00	3.21		ug/L		80	58 - 133	14	31
Dibenz(a,h)anthracene	4.00	3.04		ug/L		76	57 - 140	7	31

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	72		54 - 120

Lab Sample ID: 580-90144-1 MS
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 314954

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	ND		4.24	3.21		ug/L		76	53 - 130
Chrysene	ND		4.24	2.71		ug/L		64	52 - 125
Benzo[b]fluoranthene	ND		4.24	3.04		ug/L		72	57 - 132
Benzo[k]fluoranthene	ND		4.24	2.46		ug/L		58	52 - 132
Benzo[a]pyrene	ND		4.24	2.72		ug/L		64	33 - 129
Indeno[1,2,3-cd]pyrene	ND		4.24	3.60		ug/L		85	58 - 133
Dibenz(a,h)anthracene	ND		4.24	3.22		ug/L		76	57 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14	62		54 - 120

Lab Sample ID: 580-90144-1 MSD
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 314954

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	ND		4.31	3.73		ug/L		87	53 - 130	15	35
Chrysene	ND		4.31	3.09		ug/L		72	52 - 125	13	19
Benzo[b]fluoranthene	ND		4.31	3.54		ug/L		82	57 - 132	15	25
Benzo[k]fluoranthene	ND		4.31	2.81		ug/L		65	52 - 132	13	22
Benzo[a]pyrene	ND		4.31	3.17		ug/L		74	33 - 129	15	35
Indeno[1,2,3-cd]pyrene	ND		4.31	4.00		ug/L		93	58 - 133	11	31
Dibenz(a,h)anthracene	ND		4.31	3.61		ug/L		84	57 - 140	12	31

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-90144-1 MSD
Matrix: Water
Analysis Batch: 315202

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 314954

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14	78		54 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-314837/7
Matrix: Water
Analysis Batch: 314837

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/22/19 11:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	100		50 - 150		10/22/19 11:27	1			
Trifluorotoluene (Surr)	97		50 - 150		10/22/19 11:27	1			

Lab Sample ID: LCS 580-314837/8
Matrix: Water
Analysis Batch: 314837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.976		mg/L		98	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	113		50 - 150				
Trifluorotoluene (Surr)	92		50 - 150				

Lab Sample ID: LCSD 580-314837/9
Matrix: Water
Analysis Batch: 314837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.980		mg/L		98	79 - 120	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	110		50 - 150						
Trifluorotoluene (Surr)	90		50 - 150						

Lab Sample ID: 580-90144-1 MS
Matrix: Water
Analysis Batch: 314837

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	0.841		mg/L		84	79 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	114		50 - 150						
Trifluorotoluene (Surr)	69		50 - 150						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-90144-1 MSD
Matrix: Water
Analysis Batch: 314837

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		1.00	0.903		mg/L		90	79 - 120	7	10
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	104		50 - 150								
Trifluorotoluene (Surr)	83		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-315583/1-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/31/19 09:00	11/05/19 15:34	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/31/19 09:00	11/05/19 15:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				10/31/19 09:00	11/05/19 15:34	1

Lab Sample ID: LCS 580-315583/2-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120
Motor Oil (>C24-C36)	2.00	1.73		mg/L		86	64 - 120
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	74		50 - 150				

Lab Sample ID: LCSD 580-315583/3-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	1.85		mg/L		93	64 - 120	7	24
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	82		50 - 150						

Lab Sample ID: 580-90144-1 MS
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	ND	F2 F1	1.09	0.933		mg/L		86	50 - 120
Motor Oil (>C24-C36)	ND	F2 F1	1.09	1.13		mg/L		104	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	45	X	50 - 150

Lab Sample ID: 580-90144-1 MSD
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
				Result	Qualifier						
#2 Diesel (C10-C24)	ND	F2 F1	1.07	1.35	F1 F2	mg/L		126	50 - 120	36	26
Motor Oil (>C24-C36)	ND	F2 F1	1.07	1.59	F1 F2	mg/L		150	64 - 120	34	24

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	64		50 - 150

Lab Sample ID: MB 580-316340/1-B
Matrix: Water
Analysis Batch: 316417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/08/19 08:56	11/09/19 22:58	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	87		50 - 150	11/08/19 08:56	11/09/19 22:58	1

Lab Sample ID: LCS 580-316340/2-B
Matrix: Water
Analysis Batch: 316417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316340

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
#2 Diesel (C10-C24)	2.00	1.76		mg/L		88	50 - 120
Motor Oil (>C24-C36)	2.00	1.94		mg/L		97	64 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	94		50 - 150

Lab Sample ID: LCSD 580-316340/3-B
Matrix: Water
Analysis Batch: 316417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316340

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
#2 Diesel (C10-C24)	2.00	1.72		mg/L		86	50 - 120	2	26
Motor Oil (>C24-C36)	2.00	1.95		mg/L		97	64 - 120	0	24

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	94		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Client Sample ID: Outfall #002

Date Collected: 10/17/19 11:30

Date Received: 10/18/19 11:15

Lab Sample ID: 580-90144-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	314785	10/21/19 17:38	TL1	TAL SEA
Total/NA	Prep	3520C			314954	10/23/19 11:34	FCG	TAL SEA
Total/NA	Analysis	8270C SIM		1	315202	10/25/19 20:46	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314837	10/22/19 15:27	DCV	TAL SEA
Total/NA	Prep	3510C			316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Cleanup	3630C			316411	11/09/19 10:38	CJB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316417	11/10/19 00:46	W1T	TAL SEA
Total/NA	Prep	3510C			315583	10/31/19 09:00	NRF	TAL SEA
Total/NA	Cleanup	3630C			315973	11/05/19 09:33	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316039	11/05/19 16:34	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 10/17/19 11:35

Date Received: 10/18/19 11:15

Lab Sample ID: 580-90144-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	314785	10/21/19 16:48	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	314837	10/22/19 13:03	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90144-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90144-1	Outfall #002	Water	10/17/19 11:30	10/18/19 11:15	
580-90144-2	Trip Blank	Water	10/17/19 11:35	10/18/19 11:15	

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TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel: 253-922-2310
Fax: 253-922-5047
www.testamericainc.com

Rush
 Short Hold

Chain of Custody Record

11/12/2019

Client: **Arcadis**

Address: **100 Olive Way Suite 300**

City: **Seattle** State: **WA** Zip Code: **98101**

Project Name and Location (State): **Edmonds Terminal**

Client Contact: **Phyllis Enelle**

Telephone Number (Area Code)/Fax Number: **98101**

Date: **10-17-2019**

Chain of Custody Number: **38466**

Contract/Purchase Order/Quote No.

Sampler: **KIET Zaubi**

Lab Contact: **Elaine Walker**

Lab Number

Page **1** of **1**

Sample I.D. and Location/Description
(Containers for each sample may be combined on one line)

Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
Outfall # 002	10-17-19	1130	X			2			8		
Outfall # 002 Ins/MSD	10-17-19	1135	X			2			8		
TRIP BLANK											

Matrix	Containers & Preservatives
	Benzene EPA Lab
	NWTPH-6x
	NWTAI-DX W/MS
	CPAC 8270CS

Analysis (Attach list if more space is needed)

SP, Loc: 580
COR 90144



580-90144 Chain of Custody

* Benzene and CPAC must have quantitative loss from 1 mg/L

* Use standard SGL.

Cooler: Yes No Cooler Temp. _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

1. Relinquished By Sign/Print: **KIET Zaubi** Date: **10-18-19** Time: **1115**
 2. Relinquished By Sign/Print: **KIET Zaubi** Date: **10-18-19** Time: **1115**
 3. Relinquished By Sign/Print: **B. Bell** Date: **10-18-19** Time: **1115**

Therm. ID: **507** Cor: **2-6** Inc: **2-9**
 Cooler Disc: **INS** **BLK**
 Packing: **RB**
 Cust. Seal: Yes No
 Blue Ice: Wet/Dry, None

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy
 F.P.S.: _____ Lab Cour: **X**
 Other: _____
 TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-90144-1

Login Number: 90144

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Analyses listed on COC; individual samples not designated for specific analyses
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90328-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
11/6/2019 3:05:27 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Job ID: 580-90328-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-90328-1**

Receipt

Two samples were received on 10/24/2019 12:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5° C.

Receipt Exceptions

The Chain of Custody requests NWTPH-Dx analysis on the trip blank. This is not a typical trip blank analysis and not trip blank containers were provided. The sample was logged for 624.1 as requested and NWTPH-Gx.Trip Blank (580-90328-2)

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90328-1

Date Collected: 10/22/19 09:15

Matrix: Water

Date Received: 10/24/19 12:05

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.9		1.0	0.53	ug/L			10/29/19 19:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123					10/29/19 19:26	1
Toluene-d8 (Surr)	106		79 - 122					10/29/19 19:26	1
4-Bromofluorobenzene (Surr)	93		78 - 119					10/29/19 19:26	1
Dibromofluoromethane (Surr)	93		70 - 120					10/29/19 19:26	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					10/29/19 19:26	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		10/28/19 10:03	10/29/19 11:33	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		10/28/19 10:03	10/29/19 11:33	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		10/28/19 10:03	10/29/19 11:33	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		10/28/19 10:03	10/29/19 11:33	1
Chrysene	ND		0.11	0.017	ug/L		10/28/19 10:03	10/29/19 11:33	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L		10/28/19 10:03	10/29/19 11:33	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		10/28/19 10:03	10/29/19 11:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	76		53 - 120				10/28/19 10:03	10/29/19 11:33	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/30/19 13:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150					10/30/19 13:53	1
Trifluorotoluene (Surr)	99		50 - 150					10/30/19 13:53	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		10/31/19 09:00	11/05/19 17:35	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		10/31/19 09:00	11/05/19 17:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150				10/31/19 09:00	11/05/19 17:35	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-90328-2

Date Collected: 10/22/19 00:01

Matrix: Water

Date Received: 10/24/19 12:05

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/29/19 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123		10/29/19 13:09	1
Toluene-d8 (Surr)	104		79 - 122		10/29/19 13:09	1
4-Bromofluorobenzene (Surr)	91		78 - 119		10/29/19 13:09	1
Dibromofluoromethane (Surr)	97		70 - 120		10/29/19 13:09	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		10/29/19 13:09	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/30/19 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150		10/30/19 13:28	1
Trifluorotoluene (Surr)	92		50 - 150		10/30/19 13:28	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-315410/7
Matrix: Water
Analysis Batch: 315410

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			10/29/19 12:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123		10/29/19 12:45	1
Toluene-d8 (Surr)	107		79 - 122		10/29/19 12:45	1
4-Bromofluorobenzene (Surr)	89		78 - 119		10/29/19 12:45	1
Dibromofluoromethane (Surr)	96		70 - 120		10/29/19 12:45	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		10/29/19 12:45	1

Lab Sample ID: LCS 580-315410/4
Matrix: Water
Analysis Batch: 315410

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.47		ug/L		95	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	94		74 - 123
Toluene-d8 (Surr)	106		79 - 122
4-Bromofluorobenzene (Surr)	92		78 - 119
Dibromofluoromethane (Surr)	99		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Lab Sample ID: LCSD 580-315410/5
Matrix: Water
Analysis Batch: 315410

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.26		ug/L		93	65 - 135	2	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	91		74 - 123
Toluene-d8 (Surr)	105		79 - 122
4-Bromofluorobenzene (Surr)	93		78 - 119
Dibromofluoromethane (Surr)	95		70 - 120
1,2-Dichloroethane-d4 (Surr)	98		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-315261/1-A
Matrix: Water
Analysis Batch: 315379

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/28/19 10:03	10/29/19 09:31	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		10/28/19 10:03	10/29/19 09:31	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		10/28/19 10:03	10/29/19 09:31	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/28/19 10:03	10/29/19 09:31	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-315261/1-A
Matrix: Water
Analysis Batch: 315379

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		10/28/19 10:03	10/29/19 09:31	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		10/28/19 10:03	10/29/19 09:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/28/19 10:03	10/29/19 09:31	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		53 - 120				10/28/19 10:03	10/29/19 09:31	1

Lab Sample ID: LCS 580-315261/2-A
Matrix: Water
Analysis Batch: 315379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315261

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.14		ug/L		78	61 - 129
Benzo[a]pyrene	4.00	3.04		ug/L		76	56 - 130
Benzo[b]fluoranthene	4.00	3.28		ug/L		82	53 - 133
Benzo[k]fluoranthene	4.00	3.54		ug/L		88	51 - 132
Chrysene	4.00	3.22		ug/L		80	47 - 126
Dibenz(a,h)anthracene	4.00	3.29		ug/L		82	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.21		ug/L		80	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	79		53 - 120				

Lab Sample ID: LCSD 580-315261/3-A
Matrix: Water
Analysis Batch: 315379

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315261

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.45		ug/L		86	61 - 129	10	31
Benzo[a]pyrene	4.00	3.49		ug/L		87	56 - 130	14	27
Benzo[b]fluoranthene	4.00	3.57		ug/L		89	53 - 133	8	25
Benzo[k]fluoranthene	4.00	3.77		ug/L		94	51 - 132	6	25
Chrysene	4.00	3.40		ug/L		85	47 - 126	5	23
Dibenz(a,h)anthracene	4.00	3.52		ug/L		88	60 - 133	7	25
Indeno[1,2,3-cd]pyrene	4.00	3.54		ug/L		89	56 - 135	10	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	79		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-315498/7
Matrix: Water
Analysis Batch: 315498

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			10/30/19 11:17	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-315498/7
Matrix: Water
Analysis Batch: 315498

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	100		50 - 150		10/30/19 11:17	1
Trifluorotoluene (Surr)	59		50 - 150		10/30/19 11:17	1

Lab Sample ID: LCS 580-315498/8
Matrix: Water
Analysis Batch: 315498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.916		mg/L		92	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	109		50 - 150
Trifluorotoluene (Surr)	94		50 - 150

Lab Sample ID: LCSD 580-315498/9
Matrix: Water
Analysis Batch: 315498

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.922		mg/L		92	79 - 120	1	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	109		50 - 150
Trifluorotoluene (Surr)	92		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-315583/1-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315583

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/31/19 09:00	11/05/19 15:34	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/31/19 09:00	11/05/19 15:34	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	77		50 - 150	10/31/19 09:00	11/05/19 15:34	1

Lab Sample ID: LCS 580-315583/2-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		78	50 - 120
Motor Oil (>C24-C36)	2.00	1.73		mg/L		86	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-315583/2-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315583

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	74		50 - 150

Lab Sample ID: LCSD 580-315583/3-C
Matrix: Water
Analysis Batch: 316039

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	Limit	Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120	6	26	
Motor Oil (>C24-C36)	2.00	1.85		mg/L		93	64 - 120	7	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	82		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Client Sample ID: Outfall #002

Date Collected: 10/22/19 09:15

Date Received: 10/24/19 12:05

Lab Sample ID: 580-90328-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	315410	10/29/19 19:26	APR	TAL SEA
Total/NA	Prep	3510C			315261	10/28/19 10:03	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	315379	10/29/19 11:33	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315498	10/30/19 13:53	EML	TAL SEA
Total/NA	Prep	3510C			315583	10/31/19 09:00	NRF	TAL SEA
Total/NA	Cleanup	3630C			315973	11/05/19 09:33	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316039	11/05/19 17:35	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 10/22/19 00:01

Date Received: 10/24/19 12:05

Lab Sample ID: 580-90328-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	315410	10/29/19 13:09	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315498	10/30/19 13:28	EML	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90328-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90328-1	Outfall #002	Water	10/22/19 09:15	10/24/19 12:05	
580-90328-2	Trip Blank	Water	10/22/19 00:01	10/24/19 12:05	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client Arcadis		Client Contact Ophélie Enelle		Date 10-22-19	Chain of Custody Number 38569
Address 1100 Olive Way, Suite 300		Telephone Number (Area Code)/Fax Number		Lab Number	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)
Project Name and Location (State) Edmonds Terminal			Billing Contact		

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt			
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH				
Outfall #602	10-22-19	0915		X			2				6					* pH = 8.18
TRIP BLANK	—	—		X												like standard SEC

Benzene 1024 5mL
 NITRO-DY WISGOL
 NWTM-GX
 CPMS 02706



530-90328 Chain of Custody

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____	QC Requirements (Specify)
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------

1. Relinquished By Brett Tobin	Date 10/24/19	Time 1205	1. Received By B. Gull	Date 10/24/19	Time 1205
2. Relinquished By _____	Date _____	Time _____	2. Received By _____	Date _____	Time _____
3. Relinquished By _____	Date _____	Time _____	3. Received By _____	Date _____	Time _____

Comments Therm. ID: FE7 Cor: 1.5 ° Unc: 1.8 ° Cooler Dsc: Sal Blue Packing: Qb Cust. Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Blue Ice: <input checked="" type="checkbox"/> Dry, None	FedEx: _____ UPS: _____ Lab Cour: R Other: _____
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-90328-1

Login Number: 90328

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90513-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
11/15/2019 4:54:36 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Job ID: 580-90513-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-90513-1**

Receipt

Two samples were received on 11/1/2019 10:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90513-1

Date Collected: 10/31/19 10:00

Matrix: Water

Date Received: 11/01/19 10:38

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/06/19 14:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123		11/06/19 14:02	1
Toluene-d8 (Surr)	107		79 - 122		11/06/19 14:02	1
4-Bromofluorobenzene (Surr)	88		78 - 119		11/06/19 14:02	1
Dibromofluoromethane (Surr)	98		70 - 120		11/06/19 14:02	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 120		11/06/19 14:02	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		11/07/19 15:01	11/08/19 20:43	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/07/19 15:01	11/08/19 20:43	1
Benzo[b]fluoranthene	ND		0.052	0.011	ug/L		11/07/19 15:01	11/08/19 20:43	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		11/07/19 15:01	11/08/19 20:43	1
Chrysene	ND		0.10	0.017	ug/L		11/07/19 15:01	11/08/19 20:43	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		11/07/19 15:01	11/08/19 20:43	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		11/07/19 15:01	11/08/19 20:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	86		53 - 120	11/07/19 15:01	11/08/19 20:43	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/04/19 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		50 - 150		11/04/19 21:49	1
Trifluorotoluene (Surr)	76		50 - 150		11/04/19 21:49	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/13/19 08:56	11/14/19 02:37	1
Motor Oil (>C24-C36)	0.13	J	0.35	0.095	mg/L		11/13/19 08:56	11/14/19 02:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	66		50 - 150	11/13/19 08:56	11/14/19 02:37	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-90513-2

Date Collected: 10/31/19 00:01

Matrix: Water

Date Received: 11/01/19 10:38

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/05/19 13:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123		11/05/19 13:17	1
Toluene-d8 (Surr)	106		79 - 122		11/05/19 13:17	1
4-Bromofluorobenzene (Surr)	88		78 - 119		11/05/19 13:17	1
Dibromofluoromethane (Surr)	98		70 - 120		11/05/19 13:17	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		11/05/19 13:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/04/19 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		50 - 150		11/04/19 13:48	1
Trifluorotoluene (Surr)	78		50 - 150		11/04/19 13:48	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-315986/7
Matrix: Water
Analysis Batch: 315986

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/05/19 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123					11/05/19 12:26	1
Toluene-d8 (Surr)	102		79 - 122					11/05/19 12:26	1
4-Bromofluorobenzene (Surr)	91		78 - 119					11/05/19 12:26	1
Dibromofluoromethane (Surr)	97		70 - 120					11/05/19 12:26	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					11/05/19 12:26	1

Lab Sample ID: LCS 580-315986/4
Matrix: Water
Analysis Batch: 315986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.50		ug/L		95	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	91		74 - 123				
Toluene-d8 (Surr)	107		79 - 122				
4-Bromofluorobenzene (Surr)	92		78 - 119				
Dibromofluoromethane (Surr)	92		70 - 120				
1,2-Dichloroethane-d4 (Surr)	95		70 - 120				

Lab Sample ID: LCSD 580-315986/5
Matrix: Water
Analysis Batch: 315986

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.46		ug/L		95	65 - 135	0	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	91		74 - 123						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	96		78 - 119						
Dibromofluoromethane (Surr)	97		70 - 120						
1,2-Dichloroethane-d4 (Surr)	100		70 - 120						

Lab Sample ID: MB 580-316108/7
Matrix: Water
Analysis Batch: 316108

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/06/19 12:22	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123					11/06/19 12:22	1
Toluene-d8 (Surr)	107		79 - 122					11/06/19 12:22	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-316108/7
Matrix: Water
Analysis Batch: 316108

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	89		78 - 119		11/06/19 12:22	1
Dibromofluoromethane (Surr)	99		70 - 120		11/06/19 12:22	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		11/06/19 12:22	1

Lab Sample ID: LCS 580-316108/4
Matrix: Water
Analysis Batch: 316108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Trifluorotoluene (Surr)	89		74 - 123
Toluene-d8 (Surr)	105		79 - 122
4-Bromofluorobenzene (Surr)	94		78 - 119
Dibromofluoromethane (Surr)	96		70 - 120
1,2-Dichloroethane-d4 (Surr)	97		70 - 120

Lab Sample ID: LCSD 580-316108/5
Matrix: Water
Analysis Batch: 316108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Trifluorotoluene (Surr)	89		74 - 123
Toluene-d8 (Surr)	104		79 - 122
4-Bromofluorobenzene (Surr)	93		78 - 119
Dibromofluoromethane (Surr)	94		70 - 120
1,2-Dichloroethane-d4 (Surr)	96		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-316292/1-A
Matrix: Water
Analysis Batch: 316356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316292

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/07/19 15:01	11/08/19 12:08	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/07/19 15:01	11/08/19 12:08	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		11/07/19 15:01	11/08/19 12:08	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/07/19 15:01	11/08/19 12:08	1
Chrysene	ND		0.10	0.016	ug/L		11/07/19 15:01	11/08/19 12:08	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/07/19 15:01	11/08/19 12:08	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/07/19 15:01	11/08/19 12:08	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-316292/1-A
Matrix: Water
Analysis Batch: 316356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316292

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	79		53 - 120	11/07/19 15:01	11/08/19 12:08	1

Lab Sample ID: LCS 580-316292/2-A
Matrix: Water
Analysis Batch: 316356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316292

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]pyrene	4.00	2.72		ug/L		68	56 - 130
Benzo[b]fluoranthene	4.00	2.69		ug/L		67	53 - 133
Benzo[k]fluoranthene	4.00	2.67		ug/L		67	51 - 132
Chrysene	4.00	2.61		ug/L		65	47 - 126
Dibenz(a,h)anthracene	4.00	2.81		ug/L		70	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.07		ug/L		77	56 - 135

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	82		53 - 120

Lab Sample ID: LCSD 580-316292/3-A
Matrix: Water
Analysis Batch: 316356

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316292

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]pyrene	4.00	2.82		ug/L		71	56 - 130	4	27
Benzo[b]fluoranthene	4.00	3.16		ug/L		79	53 - 133	16	25
Benzo[k]fluoranthene	4.00	2.60		ug/L		65	51 - 132	3	25
Chrysene	4.00	2.69		ug/L		67	47 - 126	3	23
Dibenz(a,h)anthracene	4.00	2.94		ug/L		73	60 - 133	4	25
Indeno[1,2,3-cd]pyrene	4.00	3.15		ug/L		79	56 - 135	2	24

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	81		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-315854/7
Matrix: Water
Analysis Batch: 315854

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			11/04/19 11:20	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	111		50 - 150		11/04/19 11:20	1
Trifluorotoluene (Surr)	83		50 - 150		11/04/19 11:20	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-315854/10
Matrix: Water
Analysis Batch: 315854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.984		mg/L		98	79 - 120
Surrogate							
	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	112		50 - 150				
Trifluorotoluene (Surr)	106		50 - 150				

Lab Sample ID: LCSD 580-315854/11
Matrix: Water
Analysis Batch: 315854

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	1.00		mg/L		100	79 - 120	2	10
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	115		50 - 150						
Trifluorotoluene (Surr)	97		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-316660/1-B
Matrix: Water
Analysis Batch: 316738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316660

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/13/19 08:56	11/14/19 01:30	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/13/19 08:56	11/14/19 01:30	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150				11/13/19 08:56	11/14/19 01:30	1

Lab Sample ID: LCS 580-316660/2-B
Matrix: Water
Analysis Batch: 316738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.90		mg/L		95	50 - 120
Motor Oil (>C24-C36)	2.00	2.01		mg/L		100	64 - 120
Surrogate							
	%Recovery	LCS Qualifier	Limits				
o-Terphenyl	107		50 - 150				

Lab Sample ID: LCSD 580-316660/3-B
Matrix: Water
Analysis Batch: 316738

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316660

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.88		mg/L		94	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	1.99		mg/L		100	64 - 120	1	24

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

<i>Surrogate</i>	<i>LCS</i>	<i>D</i>	<i>LCS</i>	<i>D</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>			
<i>o-Terphenyl</i>	98				50 - 150

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Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Client Sample ID: Outfall #002

Date Collected: 10/31/19 10:00

Date Received: 11/01/19 10:38

Lab Sample ID: 580-90513-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	316108	11/06/19 14:02	CJ	TAL SEA
Total/NA	Prep	3510C			316292	11/07/19 15:01	PRO	TAL SEA
Total/NA	Analysis	8270C SIM		1	316356	11/08/19 20:43	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315854	11/04/19 21:49	DCV	TAL SEA
Total/NA	Prep	3510C			316660	11/13/19 08:56	NRF	TAL SEA
Total/NA	Cleanup	3630C			316729	11/13/19 13:47	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316738	11/14/19 02:37	JCM	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 10/31/19 00:01

Date Received: 11/01/19 10:38

Lab Sample ID: 580-90513-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	315986	11/05/19 13:17	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315854	11/04/19 13:48	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-90513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90513-1	Outfall #002	Water	10/31/19 10:00	11/01/19 10:38	
580-90513-2	Trip Blank	Water	10/31/19 00:01	11/01/19 10:38	

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Rush

Short Hold

Chain of Custody Record

Client Arcadis Client Contact Opndie Enckle Date 10/31/19 Chain of Custody Number 38568
 Address 1100 Olive Way, Suite 400 Telephone Number (Area Code)/Fax Number 206-439-9622 Lab Number
 City Seattle State WA Zip Code 98101 Sampler Bret Topin Lab Contact Elaine Walker

Project Name and Location (State) Edmonds Terminal Billing Contact
 Contract/Purchase Order/Quote No. Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives								Special Instructions/ Conditions of Receipt								
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH											
OUTFALL #002	10/31/19	1000	X												X	X	X	X					pH = 7.88
Trip Blanks			X												X	X							* Benzene and CPAHs have a quantitative less than 1ug/L
																							* Use standard SGC



580-90513 Chain of Custody

Cooler Yes No Cooler Temp: _____ Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other Standard QC Requirements (Specify)

1. Relinquished By Sign/Print [Signature] Date 11/01/19 Time 10:38 1. Received By Sign/Print B. Gall B. Gall SKATA Date 11-1-19 Time 1038
 2. Relinquished By Sign/Print _____ Date _____ Time _____ 2. Received By Sign/Print _____ Date _____ Time _____
 3. Relinquished By Sign/Print _____ Date _____ Time _____ 3. Received By Sign/Print _____ Date _____ Time _____

Therm. ID: A1 Cor: 5.9 Unc: 6.0 Time _____
 Cooler Desc: SMI Blue
 Packing: Bub FedEx: _____
 Cust. Seal: Yes No UPS: _____
 Blue Ice: Wet Dry, None Lab Cour: X
 Other: _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-90513-1

Login Number: 90513

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90682-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
11/15/2019 4:58:15 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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results through
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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Job ID: 580-90682-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-90682-1**

Receipt

Three samples were received on 11/8/2019 10:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90682-1

Date Collected: 11/07/19 14:00

Matrix: Water

Date Received: 11/08/19 10:55

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/11/19 20:48	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	93		74 - 123					11/11/19 20:48	1
Toluene-d8 (Surr)	105		79 - 122					11/11/19 20:48	1
4-Bromofluorobenzene (Surr)	90		78 - 119					11/11/19 20:48	1
Dibromofluoromethane (Surr)	94		70 - 120					11/11/19 20:48	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					11/11/19 20:48	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		11/11/19 09:36	11/12/19 16:38	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/11/19 09:36	11/12/19 16:38	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		11/11/19 09:36	11/12/19 16:38	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		11/11/19 09:36	11/12/19 16:38	1
Chrysene	ND		0.10	0.016	ug/L		11/11/19 09:36	11/12/19 16:38	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/11/19 09:36	11/12/19 16:38	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		11/11/19 09:36	11/12/19 16:38	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	56		53 - 120				11/11/19 09:36	11/12/19 16:38	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/11/19 18:16	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150					11/11/19 18:16	1
Trifluorotoluene (Surr)	100		50 - 150					11/11/19 18:16	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/14/19 08:51	11/15/19 02:15	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/14/19 08:51	11/15/19 02:15	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150				11/14/19 08:51	11/15/19 02:15	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Client Sample ID: Dup-1
Date Collected: 11/07/19 14:00
Date Received: 11/08/19 10:55

Lab Sample ID: 580-90682-2
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/11/19 21:14	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					11/11/19 21:14	1
Toluene-d8 (Surr)	106		79 - 122					11/11/19 21:14	1
4-Bromofluorobenzene (Surr)	90		78 - 119					11/11/19 21:14	1
Dibromofluoromethane (Surr)	99		70 - 120					11/11/19 21:14	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					11/11/19 21:14	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/11/19 09:36	11/12/19 17:04	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/11/19 09:36	11/12/19 17:04	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		11/11/19 09:36	11/12/19 17:04	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/11/19 09:36	11/12/19 17:04	1
Chrysene	ND		0.10	0.016	ug/L		11/11/19 09:36	11/12/19 17:04	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/11/19 09:36	11/12/19 17:04	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/11/19 09:36	11/12/19 17:04	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	57		53 - 120				11/11/19 09:36	11/12/19 17:04	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/11/19 18:40	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150					11/11/19 18:40	1
Trifluorotoluene (Surr)	96		50 - 150					11/11/19 18:40	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		11/14/19 08:51	11/15/19 02:36	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		11/14/19 08:51	11/15/19 02:36	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150				11/14/19 08:51	11/15/19 02:36	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-90682-3

Date Collected: 11/07/19 00:01

Matrix: Water

Date Received: 11/08/19 10:55

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/11/19 14:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123		11/11/19 14:08	1
Toluene-d8 (Surr)	105		79 - 122		11/11/19 14:08	1
4-Bromofluorobenzene (Surr)	89		78 - 119		11/11/19 14:08	1
Dibromofluoromethane (Surr)	100		70 - 120		11/11/19 14:08	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 120		11/11/19 14:08	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/11/19 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		50 - 150		11/11/19 15:04	1
Trifluorotoluene (Surr)	97		50 - 150		11/11/19 15:04	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-316491/7
Matrix: Water
Analysis Batch: 316491

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/11/19 12:39	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					11/11/19 12:39	1
Toluene-d8 (Surr)	105		79 - 122					11/11/19 12:39	1
4-Bromofluorobenzene (Surr)	89		78 - 119					11/11/19 12:39	1
Dibromofluoromethane (Surr)	95		70 - 120					11/11/19 12:39	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120					11/11/19 12:39	1

Lab Sample ID: LCS 580-316491/4
Matrix: Water
Analysis Batch: 316491

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.37		ug/L		94	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	90		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	94		78 - 119				
Dibromofluoromethane (Surr)	95		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-316491/5
Matrix: Water
Analysis Batch: 316491

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.56		ug/L		96	65 - 135	2	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	89		74 - 123						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	91		78 - 119						
Dibromofluoromethane (Surr)	93		70 - 120						
1,2-Dichloroethane-d4 (Surr)	96		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-316461/1-A
Matrix: Water
Analysis Batch: 316559

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316461

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/11/19 09:36	11/12/19 13:35	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/11/19 09:36	11/12/19 13:35	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		11/11/19 09:36	11/12/19 13:35	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/11/19 09:36	11/12/19 13:35	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-316461/1-A
Matrix: Water
Analysis Batch: 316559

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316461

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		11/11/19 09:36	11/12/19 13:35	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/11/19 09:36	11/12/19 13:35	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/11/19 09:36	11/12/19 13:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	58		53 - 120	11/11/19 09:36	11/12/19 13:35	1

Lab Sample ID: LCS 580-316461/2-A
Matrix: Water
Analysis Batch: 316559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316461

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.89		ug/L		97	61 - 129
Benzo[a]pyrene	4.00	3.09		ug/L		77	56 - 130
Benzo[b]fluoranthene	4.00	3.18		ug/L		79	53 - 133
Benzo[k]fluoranthene	4.00	3.20		ug/L		80	51 - 132
Chrysene	4.00	3.08		ug/L		77	47 - 126
Dibenz(a,h)anthracene	4.00	3.49		ug/L		87	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.90		ug/L		98	56 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	64		53 - 120

Lab Sample ID: LCSD 580-316461/3-A
Matrix: Water
Analysis Batch: 316559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316461

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.61		ug/L		90	61 - 129	8	31
Benzo[a]pyrene	4.00	3.08		ug/L		77	56 - 130	0	27
Benzo[b]fluoranthene	4.00	2.93		ug/L		73	53 - 133	8	25
Benzo[k]fluoranthene	4.00	2.98		ug/L		74	51 - 132	7	25
Chrysene	4.00	2.94		ug/L		73	47 - 126	5	23
Dibenz(a,h)anthracene	4.00	3.30		ug/L		83	60 - 133	6	25
Indeno[1,2,3-cd]pyrene	4.00	3.71		ug/L		93	56 - 135	5	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	54		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-316477/7
Matrix: Water
Analysis Batch: 316477

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/11/19 12:39	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-316477/7
Matrix: Water
Analysis Batch: 316477

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		50 - 150		11/11/19 12:39	1
Trifluorotoluene (Surr)	100		50 - 150		11/11/19 12:39	1

Lab Sample ID: LCS 580-316477/8
Matrix: Water
Analysis Batch: 316477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	1.02		mg/L		102	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	117		50 - 150
Trifluorotoluene (Surr)	108		50 - 150

Lab Sample ID: LCSD 580-316477/9
Matrix: Water
Analysis Batch: 316477

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.942		mg/L		94	79 - 120	7	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	93		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-316768/1-B
Matrix: Water
Analysis Batch: 316874

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/14/19 08:51	11/15/19 00:14	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/14/19 08:51	11/15/19 00:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150	11/14/19 08:51	11/15/19 00:14	1

Lab Sample ID: LCS 580-316768/2-B
Matrix: Water
Analysis Batch: 316874

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.73		mg/L		87	50 - 120
Motor Oil (>C24-C36)	2.00	1.97		mg/L		99	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-316768/2-B
Matrix: Water
Analysis Batch: 316874

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316768

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	82		50 - 150

Lab Sample ID: LCSD 580-316768/3-B
Matrix: Water
Analysis Batch: 316874

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316768

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD
							Limits	RPD	
#2 Diesel (C10-C24)	2.00	1.67		mg/L		83	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	1.91		mg/L		95	64 - 120	3	24

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	76		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90682-1

Date Collected: 11/07/19 14:00

Matrix: Water

Date Received: 11/08/19 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	316491	11/11/19 20:48	TL1	TAL SEA
Total/NA	Prep	3510C			316461	11/11/19 09:36	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	316559	11/12/19 16:38	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	316477	11/11/19 18:16	DCV	TAL SEA
Total/NA	Prep	3510C			316768	11/14/19 08:51	NRF	TAL SEA
Total/NA	Cleanup	3630C			316824	11/14/19 11:32	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316874	11/15/19 02:15	JCM	TAL SEA

Client Sample ID: Dup-1

Lab Sample ID: 580-90682-2

Date Collected: 11/07/19 14:00

Matrix: Water

Date Received: 11/08/19 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	316491	11/11/19 21:14	TL1	TAL SEA
Total/NA	Prep	3510C			316461	11/11/19 09:36	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	316559	11/12/19 17:04	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	316477	11/11/19 18:40	DCV	TAL SEA
Total/NA	Prep	3510C			316768	11/14/19 08:51	NRF	TAL SEA
Total/NA	Cleanup	3630C			316824	11/14/19 11:32	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	316874	11/15/19 02:36	JCM	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-90682-3

Date Collected: 11/07/19 00:01

Matrix: Water

Date Received: 11/08/19 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	316491	11/11/19 14:08	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	316477	11/11/19 15:04	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90682-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90682-1	Outfall #002	Water	11/07/19 14:00	11/08/19 10:55	
580-90682-2	Dup-1	Water	11/07/19 14:00	11/08/19 10:55	
580-90682-3	Trip Blank	Water	11/07/19 00:01	11/08/19 10:55	

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Client: **Arcadis** Client Contact: **Ophélie Encelle** Date: **11/7/19** Chain of Custody Number: **38572**
Address: **1100 Olive Way, Suite 800** Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____ Page **1** of **1**
City: **Seattle** State: **WA** Zip Code: **98101** Sampler: **Daniel Stry Gilbert** Lab Contact: **Elaine Walker**

Project Name and Location (State): **Edmonds Terminal** Billing Contact: _____ Analysis (Attach list if more space is needed):
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis (Attach list if more space is needed)	Loc: 580 S: 90682 C: _____	
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
Outfall #002	11/7/19	1400	X												PH = 8.0 * Benzene and cPAHs must have a quantitative less than 1 1 Mg/L * use standard S6C
Dup-1	11/7/19	---	X												
Trip Blank	---	---	X												



580-90682 Chain of Custody

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal: Disposal By Lab Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **Standard** QC Requirements (Specify): _____

1. Relinquished By: [Signature] Date: 11/8/19 Time: 10:55	1. Received By: [Signature] Date: 11/8/19 Time: 10:55
2. Relinquished By: _____ Date: _____ Time: _____	2. Received By: _____ Date: _____ Time: _____
3. Relinquished By: _____ Date: _____ Time: _____	3. Received By: _____ Date: _____ Time: _____

Therm. ID: **107** Cor: **3.7** Unc: **4.0** Time _____
Cooler Dsc: **1g blue** FedEx: _____
Packing: **Sub** UPS: _____
Cust. Seal: Yes No _____ Lab Cour: **X**
Blue Ice: Dry, None _____ Other: _____ 3274530192019

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-90682-1

Login Number: 90682

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	




ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90838-1
Client Project/Site: Edmonds Terminal
Sampling Event: Outfall#2

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
11/25/2019 5:10:13 PM
Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Designee for
Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	7
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Certification Summary	12
Sample Summary	13
Chain of Custody	14
Receipt Checklists	15

Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Job ID: 580-90838-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-90838-1

Comments

No additional comments.

Receipt

The samples were received on 11/15/2019 3:52 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90838-1

Date Collected: 11/14/19 09:55

Matrix: Water

Date Received: 11/15/19 15:52

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			11/18/19 18:24	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	112		74 - 123					11/18/19 18:24	1
Toluene-d8 (Surr)	104		79 - 122					11/18/19 18:24	1
4-Bromofluorobenzene (Surr)	101		78 - 119					11/18/19 18:24	1
Dibromofluoromethane (Surr)	106		70 - 120					11/18/19 18:24	1
1,2-Dichloroethane-d4 (Surr)	108		70 - 120					11/18/19 18:24	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		11/19/19 09:17	11/21/19 18:39	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		11/19/19 09:17	11/21/19 18:39	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		11/19/19 09:17	11/21/19 18:39	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		11/19/19 09:17	11/21/19 18:39	1
Chrysene	ND		0.11	0.017	ug/L		11/19/19 09:17	11/21/19 18:39	1
Dibenz(a,h)anthracene	ND		0.11	0.027	ug/L		11/19/19 09:17	11/21/19 18:39	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		11/19/19 09:17	11/21/19 18:39	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		53 - 120				11/19/19 09:17	11/21/19 18:39	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/18/19 20:27	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		50 - 150					11/18/19 20:27	1
Trifluorotoluene (Surr)	100		50 - 150					11/18/19 20:27	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		11/18/19 09:18	11/19/19 19:36	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		11/18/19 09:18	11/19/19 19:36	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150				11/18/19 09:18	11/19/19 19:36	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-90838-2

Date Collected: 11/14/19 00:01

Matrix: Water

Date Received: 11/15/19 15:52

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			11/18/19 14:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	112		74 - 123					11/18/19 14:16	1
Toluene-d8 (Surr)	102		79 - 122					11/18/19 14:16	1
4-Bromofluorobenzene (Surr)	99		78 - 119					11/18/19 14:16	1
Dibromofluoromethane (Surr)	103		70 - 120					11/18/19 14:16	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120					11/18/19 14:16	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/18/19 14:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		50 - 150					11/18/19 14:03	1
Trifluorotoluene (Surr)	106		50 - 150					11/18/19 14:03	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-317051/6
Matrix: Water
Analysis Batch: 317051

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			11/18/19 12:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	110		74 - 123					11/18/19 12:31	1
Toluene-d8 (Surr)	104		79 - 122					11/18/19 12:31	1
4-Bromofluorobenzene (Surr)	101		78 - 119					11/18/19 12:31	1
Dibromofluoromethane (Surr)	103		70 - 120					11/18/19 12:31	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 120					11/18/19 12:31	1

Lab Sample ID: LCS 580-317051/3
Matrix: Water
Analysis Batch: 317051

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.88		ug/L		99	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	110		74 - 123				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	100		78 - 119				
Dibromofluoromethane (Surr)	106		70 - 120				
1,2-Dichloroethane-d4 (Surr)	107		70 - 120				

Lab Sample ID: LCSD 580-317051/4
Matrix: Water
Analysis Batch: 317051

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	9.52		ug/L		95	65 - 135	4	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	112		74 - 123						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 119						
Dibromofluoromethane (Surr)	106		70 - 120						
1,2-Dichloroethane-d4 (Surr)	107		70 - 120						

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-317124/1-A
Matrix: Water
Analysis Batch: 317352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/19/19 09:17	11/21/19 13:11	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/19/19 09:17	11/21/19 13:11	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		11/19/19 09:17	11/21/19 13:11	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/19/19 09:17	11/21/19 13:11	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-317124/1-A

Matrix: Water

Analysis Batch: 317352

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 317124

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		11/19/19 09:17	11/21/19 13:11	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/19/19 09:17	11/21/19 13:11	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/19/19 09:17	11/21/19 13:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	110		53 - 120				11/19/19 09:17	11/21/19 13:11	1

Lab Sample ID: LCS 580-317124/2-A

Matrix: Water

Analysis Batch: 317352

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 317124

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	4.30		ug/L		108	61 - 129
Benzo[a]pyrene	4.00	4.29		ug/L		107	56 - 130
Benzo[b]fluoranthene	4.00	4.39		ug/L		110	53 - 133
Benzo[k]fluoranthene	4.00	4.21		ug/L		105	51 - 132
Chrysene	4.00	4.18		ug/L		104	47 - 126
Dibenz(a,h)anthracene	4.00	4.18		ug/L		104	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	4.40		ug/L		110	56 - 135
Surrogate	%Recovery	Qualifier	Limits				
Terphenyl-d14	105		53 - 120				

Lab Sample ID: LCSD 580-317124/3-A

Matrix: Water

Analysis Batch: 317352

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 317124

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	4.29		ug/L		107	61 - 129	0	31
Benzo[a]pyrene	4.00	4.28		ug/L		107	56 - 130	0	27
Benzo[b]fluoranthene	4.00	4.41		ug/L		110	53 - 133	0	25
Benzo[k]fluoranthene	4.00	4.14		ug/L		104	51 - 132	2	25
Chrysene	4.00	4.14		ug/L		103	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	4.15		ug/L		104	60 - 133	1	25
Indeno[1,2,3-cd]pyrene	4.00	4.39		ug/L		110	56 - 135	0	24
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	105		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-317044/7

Matrix: Water

Analysis Batch: 317044

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			11/18/19 12:51	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-317044/7

Matrix: Water

Analysis Batch: 317044

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	99		50 - 150		11/18/19 12:51	1
Trifluorotoluene (Surr)	100		50 - 150		11/18/19 12:51	1

Lab Sample ID: LCS 580-317044/8

Matrix: Water

Analysis Batch: 317044

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.955		mg/L		95	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	102		50 - 150
Trifluorotoluene (Surr)	96		50 - 150

Lab Sample ID: LCSD 580-317044/9

Matrix: Water

Analysis Batch: 317044

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline	1.00	0.976		mg/L		98	79 - 120	2	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		50 - 150
Trifluorotoluene (Surr)	102		50 - 150

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-317025/1-B

Matrix: Water

Analysis Batch: 317226

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 317025

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/18/19 09:17	11/19/19 18:29	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/18/19 09:17	11/19/19 18:29	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	84		50 - 150	11/18/19 09:17	11/19/19 18:29	1

Lab Sample ID: LCS 580-317025/2-B

Matrix: Water

Analysis Batch: 317226

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 317025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.75		mg/L		87	50 - 120
Motor Oil (>C24-C36)	2.00	1.89		mg/L		95	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-317025/2-B

Matrix: Water

Analysis Batch: 317226

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 317025

<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	95		50 - 150

Lab Sample ID: LCSD 580-317025/3-B

Matrix: Water

Analysis Batch: 317226

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 317025

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCSD</i> <i>Result</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>Limit</i>
#2 Diesel (C10-C24)	2.00	1.86		mg/L		93	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	2.09		mg/L		104	64 - 120	10	24

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	96		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-90838-1

Date Collected: 11/14/19 09:55

Matrix: Water

Date Received: 11/15/19 15:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317051	11/18/19 18:24	T1W	TAL SEA
Total/NA	Prep	3510C			317124	11/19/19 09:17	NRF	TAL SEA
Total/NA	Analysis	8270D SIM		1	317425	11/21/19 18:39	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	317044	11/18/19 20:27	DCV	TAL SEA
Total/NA	Prep	3510C			317025	11/18/19 09:18	NRF	TAL SEA
Total/NA	Cleanup	3630C			317089	11/18/19 15:52	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	317226	11/19/19 19:36	JCM	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-90838-2

Date Collected: 11/14/19 00:01

Matrix: Water

Date Received: 11/15/19 15:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317051	11/18/19 14:16	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	317044	11/18/19 14:03	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-90838-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90838-1	Outfall #002	Water	11/14/19 09:55	11/15/19 15:52	
580-90838-2	Trip Blank	Water	11/14/19 00:01	11/15/19 15:52	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush

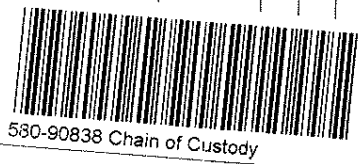
 Short Hold

Chain of Custody Record

Client Arcadis		Client Contact Ophele Enelle		Date 11/14/19	Chain of Custody Number 38567
Address 1100 Olive Way, Suite 800		Telephone Number (Area Code)/Fax Number		Lab Number	Page 1 of 1
City Seattle	State WA	Zip Code 98101	Sampler Brett Tobin	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)
Project Name and Location (State) Edmonds Terminal			Billing Contact		
Contract/Purchase Order/Quote No.					

Spec Cond **90838** Loc: 580

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives																														
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HM03	HCl	NaOH	ZnAc/NaOH	NaOH																									
OUTFALL #002	11/14/19	0955		X				2										8		NWTPH-6u	NWTPH-2x	8270c-SEM	624-5m1															
Trip Blank				X																																		



Therm. ID: **1RL6** Cor: **8.3** Unc: **7.8**
 Cooler Dsc: **SM B** FedEx: _____
 Packing: **AWB** UPS: _____
 Cust. Seal: Yes No Lab Cour:
 Blue Ice: Wet, Dry, None Other: _____

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input checked="" type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
-----------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days) 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **Standard** QC Requirements (Specify) _____

1. Relinquished By Brett Tobin Sign/Print Brett Tobin Date 11/15/19 Time 13:43	1. Received By W. Widemann Sign/Print W. Widemann Date 11/15/19 Time 13:41
2. Relinquished By Matth Widemann Sign/Print Matth Widemann Date 11/15/19 Time 14:49	2. Received By DIANA VALLEJUNGA Sign/Print DIANA VALLEJUNGA Date 11/15/19 Time 15:52
3. Relinquished By _____ Sign/Print _____ Date _____ Time _____	3. Received By _____ Sign/Print _____ Date _____ Time _____

Comments _____

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-90838-1

Login Number: 90838

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91007-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
12/23/2019 1:54:50 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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results through
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Job ID: 580-91007-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91007-1

Receipt

Two samples were received on 11/23/2019 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Methods 8270C SIM, 8270D SIM: The following sample was re-extracted outside of hold time due to incorrect LCS spike amount and surrogate recovery failures in the original extraction: Outfall #002 (580-91007-1). Both data sets are reported.

Methods 8270C SIM, 8270D SIM: The following samples were re-extracted outside of hold time due to incorrect LCS/LCSD and MS/MSD spike amounts and MB surrogate recovery failures in the original extraction: Outfall #002 (580-91007-1), Outfall #002 (580-91007-1[MS]), Outfall #002 (580-91007-1[MSD]) and (MB 580-317779/1-A). Both data sets are reported.

Method 8270C SIM: The parent sample for the following MS/MSD needed to be re-extracted. However, insufficient volume to re-extract the MS/MSD was available. Therefore only the original MS/MSD are reported. Outfall #002 (580-91007-1[MS]) and Outfall #002 (580-91007-1[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91007-1

Date Collected: 11/21/19 11:00

Matrix: Water

Date Received: 11/23/19 10:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/26/19 17:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	92		74 - 123					11/26/19 17:47	1
Toluene-d8 (Surr)	107		79 - 122					11/26/19 17:47	1
4-Bromofluorobenzene (Surr)	91		78 - 119					11/26/19 17:47	1
Dibromofluoromethane (Surr)	86		70 - 120					11/26/19 17:47	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 120					11/26/19 17:47	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		11/27/19 09:09	12/02/19 22:01	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/27/19 09:09	12/02/19 22:01	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		11/27/19 09:09	12/02/19 22:01	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		11/27/19 09:09	12/02/19 22:01	1
Chrysene	ND		0.10	0.016	ug/L		11/27/19 09:09	12/02/19 22:01	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		11/27/19 09:09	12/02/19 22:01	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		11/27/19 09:09	12/02/19 22:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	120		53 - 120				11/27/19 09:09	12/02/19 22:01	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.054	0.015	ug/L		12/04/19 09:34	12/05/19 17:38	1
Benzo[a]pyrene	ND	H	0.11	0.012	ug/L		12/04/19 09:34	12/05/19 17:38	1
Benzo[b]fluoranthene	ND	H	0.054	0.012	ug/L		12/04/19 09:34	12/05/19 17:38	1
Benzo[k]fluoranthene	ND	H	0.054	0.013	ug/L		12/04/19 09:34	12/05/19 17:38	1
Chrysene	ND	H	0.11	0.017	ug/L		12/04/19 09:34	12/05/19 17:38	1
Dibenz(a,h)anthracene	ND	H	0.11	0.028	ug/L		12/04/19 09:34	12/05/19 17:38	1
Indeno[1,2,3-cd]pyrene	ND	H	0.054	0.015	ug/L		12/04/19 09:34	12/05/19 17:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	65		53 - 120				12/04/19 09:34	12/05/19 17:38	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/28/19 03:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					11/28/19 03:04	1
Trifluorotoluene (Surr)	93		50 - 150					11/28/19 03:04	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		11/27/19 09:14	12/01/19 00:29	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		11/27/19 09:14	12/01/19 00:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150				11/27/19 09:14	12/01/19 00:29	1
o-Terphenyl	98		50 - 150				12/04/19 09:39	12/07/19 23:13	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91007-2

Date Collected: 11/21/19 00:01

Matrix: Water

Date Received: 11/23/19 10:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/26/19 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		74 - 123		11/26/19 15:12	1
Toluene-d8 (Surr)	107		79 - 122		11/26/19 15:12	1
4-Bromofluorobenzene (Surr)	90		78 - 119		11/26/19 15:12	1
Dibromofluoromethane (Surr)	91		70 - 120		11/26/19 15:12	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 120		11/26/19 15:12	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/27/19 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		50 - 150		11/27/19 23:04	1
Trifluorotoluene (Surr)	103		50 - 150		11/27/19 23:04	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-317673/12
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			11/26/19 13:56	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	87		74 - 123					11/26/19 13:56	1
Toluene-d8 (Surr)	114		79 - 122					11/26/19 13:56	1
4-Bromofluorobenzene (Surr)	90		78 - 119					11/26/19 13:56	1
Dibromofluoromethane (Surr)	95		70 - 120					11/26/19 13:56	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 120					11/26/19 13:56	1

Lab Sample ID: LCS 580-317673/13
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.75		ug/L		98	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	97		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	88		78 - 119				
Dibromofluoromethane (Surr)	92		70 - 120				
1,2-Dichloroethane-d4 (Surr)	94		70 - 120				

Lab Sample ID: LCSD 580-317673/14
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.1		ug/L		101	65 - 135	3	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	90		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 119						
Dibromofluoromethane (Surr)	101		70 - 120						
1,2-Dichloroethane-d4 (Surr)	101		70 - 120						

Lab Sample ID: 580-91007-1 MS
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		10.0	10.5		ug/L		105	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Trifluorotoluene (Surr)	91		74 - 123						
Toluene-d8 (Surr)	106		79 - 122						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-91007-1 MS
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Outfall #002
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		78 - 119
Dibromofluoromethane (Surr)	95		70 - 120
1,2-Dichloroethane-d4 (Surr)	95		70 - 120

Lab Sample ID: 580-91007-1 MSD
Matrix: Water
Analysis Batch: 317673

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		10.0	10.8		ug/L		108	65 - 135	3	33

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Trifluorotoluene (Surr)	96		74 - 123
Toluene-d8 (Surr)	102		79 - 122
4-Bromofluorobenzene (Surr)	91		78 - 119
Dibromofluoromethane (Surr)	89		70 - 120
1,2-Dichloroethane-d4 (Surr)	99		70 - 120

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-317779/1-A
Matrix: Water
Analysis Batch: 317968

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317779

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/27/19 09:09	12/02/19 16:45	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		11/27/19 09:09	12/02/19 16:45	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		11/27/19 09:09	12/02/19 16:45	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/27/19 09:09	12/02/19 16:45	1
Chrysene	ND		0.10	0.016	ug/L		11/27/19 09:09	12/02/19 16:45	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		11/27/19 09:09	12/02/19 16:45	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/27/19 09:09	12/02/19 16:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	21	X	53 - 120	11/27/19 09:09	12/02/19 16:45	1

Lab Sample ID: LCS 580-317779/2-A
Matrix: Water
Analysis Batch: 318331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317779

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	40.0	36.3		ug/L		91	61 - 129
Benzo[a]pyrene	40.0	39.6		ug/L		99	56 - 130
Benzo[b]fluoranthene	40.0	41.3		ug/L		103	53 - 133
Benzo[k]fluoranthene	40.0	40.0		ug/L		100	51 - 132
Chrysene	40.0	34.6		ug/L		86	47 - 126
Dibenz(a,h)anthracene	40.0	40.3		ug/L		101	60 - 133
Indeno[1,2,3-cd]pyrene	40.0	39.7		ug/L		99	56 - 135

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-317779/2-A
Matrix: Water
Analysis Batch: 318331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317779

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	26	X	53 - 120

Lab Sample ID: LCSD 580-317779/3-A
Matrix: Water
Analysis Batch: 318331

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317779

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	40.0	36.8		ug/L		92	61 - 129	1	31	
Benzo[a]pyrene	40.0	39.8		ug/L		99	56 - 130	0	27	
Benzo[b]fluoranthene	40.0	42.2		ug/L		106	53 - 133	2	25	
Benzo[k]fluoranthene	40.0	40.4		ug/L		101	51 - 132	1	25	
Chrysene	40.0	34.7		ug/L		87	47 - 126	0	23	
Dibenz(a,h)anthracene	40.0	40.6		ug/L		101	60 - 133	1	25	
Indeno[1,2,3-cd]pyrene	40.0	39.5		ug/L		99	56 - 135	1	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	26	X	53 - 120

Lab Sample ID: 580-91007-1 MS
Matrix: Water
Analysis Batch: 317968

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 317779

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.	
									Limits	RPD
Benzo[a]anthracene	ND		42.2	38.0		ug/L		90	61 - 129	
Benzo[a]pyrene	ND		42.2	47.5	E	ug/L		112	56 - 130	
Benzo[b]fluoranthene	ND		42.2	42.5	E	ug/L		101	53 - 133	
Benzo[k]fluoranthene	ND		42.2	36.9		ug/L		87	51 - 132	
Chrysene	ND		42.2	32.5		ug/L		77	47 - 126	
Dibenz(a,h)anthracene	ND		42.2	43.1	E	ug/L		102	60 - 133	
Indeno[1,2,3-cd]pyrene	ND		42.2	43.0	E	ug/L		102	56 - 135	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	212	X	53 - 120

Lab Sample ID: 580-91007-1 MSD
Matrix: Water
Analysis Batch: 317968

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 317779

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
									Limits	RPD		
Benzo[a]anthracene	ND		43.7	39.3		ug/L		90	61 - 129	3	31	
Benzo[a]pyrene	ND		43.7	48.0	E	ug/L		110	56 - 130	1	27	
Benzo[b]fluoranthene	ND		43.7	39.7		ug/L		91	53 - 133	7	25	
Benzo[k]fluoranthene	ND		43.7	43.5		ug/L		100	51 - 132	17	25	
Chrysene	ND		43.7	31.6		ug/L		72	47 - 126	3	23	
Dibenz(a,h)anthracene	ND		43.7	43.4		ug/L		99	60 - 133	1	25	
Indeno[1,2,3-cd]pyrene	ND		43.7	43.5		ug/L		100	56 - 135	1	24	

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-91007-1 MSD
Matrix: Water
Analysis Batch: 317968

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 317779

<i>Surrogate</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>Terphenyl-d14</i>	210	X	53 - 120

Lab Sample ID: MB 580-318173/1-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318173

<i>Analyte</i>	<i>MB</i>	<i>MB</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/04/19 09:33	12/05/19 12:24	1
Chrysene	ND		0.10	0.016	ug/L		12/04/19 09:33	12/05/19 12:24	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/04/19 09:33	12/05/19 12:24	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/04/19 09:33	12/05/19 12:24	1

<i>Surrogate</i>	<i>MB</i>	<i>MB</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
<i>Terphenyl-d14</i>	66		53 - 120	12/04/19 09:33	12/05/19 12:24	1

Lab Sample ID: LCS 580-318173/2-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318173

<i>Analyte</i>	<i>Spike</i>	<i>LCS</i>	<i>LCS</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>%Rec.</i>
Benzo[a]anthracene	4.00	3.41		ug/L		85	61 - 129
Benzo[a]pyrene	4.00	3.18		ug/L		80	56 - 130
Benzo[b]fluoranthene	4.00	2.57		ug/L		64	53 - 133
Benzo[k]fluoranthene	4.00	3.21		ug/L		80	51 - 132
Chrysene	4.00	3.04		ug/L		76	47 - 126
Dibenz(a,h)anthracene	4.00	3.18		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.28		ug/L		82	56 - 135

<i>Surrogate</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>Terphenyl-d14</i>	64		53 - 120

Lab Sample ID: LCSD 580-318173/3-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318173

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
	<i>Added</i>	<i>Result</i>	<i>Qualifier</i>						
Benzo[a]anthracene	4.00	3.41		ug/L		85	61 - 129	0	31
Benzo[a]pyrene	4.00	3.10		ug/L		77	56 - 130	3	27
Benzo[b]fluoranthene	4.00	2.59		ug/L		65	53 - 133	1	25
Benzo[k]fluoranthene	4.00	3.28		ug/L		82	51 - 132	2	25
Chrysene	4.00	2.99		ug/L		75	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	3.01		ug/L		75	60 - 133	5	25
Indeno[1,2,3-cd]pyrene	4.00	3.17		ug/L		79	56 - 135	4	24

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-318173/3-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318173

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	60		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-317821/32
Matrix: Water
Analysis Batch: 317821

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			11/27/19 21:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	97		50 - 150		11/27/19 21:51	1			
Trifluorotoluene (Surr)	94		50 - 150		11/27/19 21:51	1			

Lab Sample ID: LCS 580-317821/33
Matrix: Water
Analysis Batch: 317821

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.904		mg/L		90	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	104		50 - 150				
Trifluorotoluene (Surr)	109		50 - 150				

Lab Sample ID: LCSD 580-317821/34
Matrix: Water
Analysis Batch: 317821

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.925		mg/L		93	79 - 120	2	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	107		50 - 150						
Trifluorotoluene (Surr)	95		50 - 150						

Lab Sample ID: 580-91007-1 MS
Matrix: Water
Analysis Batch: 317821

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	1.02		mg/L		102	79 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	105		50 - 150						
Trifluorotoluene (Surr)	98		50 - 150						

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-91007-1 MSD
Matrix: Water
Analysis Batch: 317821

Client Sample ID: Outfall #002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		1.00	1.00		mg/L		100	79 - 120	2	10
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	101		50 - 150								
Trifluorotoluene (Surr)	94		50 - 150								

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-317786/1-B
Matrix: Water
Analysis Batch: 317933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317786

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/27/19 09:14	11/30/19 23:25	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/27/19 09:14	11/30/19 23:25	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	64		50 - 150	11/27/19 09:14	11/30/19 23:25	1			

Lab Sample ID: LCS 580-317786/2-B
Matrix: Water
Analysis Batch: 317933

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317786

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.69		mg/L		85	50 - 120
Motor Oil (>C24-C36)	2.00	1.97		mg/L		98	64 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	99		50 - 150				

Lab Sample ID: LCSD 580-317786/3-B
Matrix: Water
Analysis Batch: 317933

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317786

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.55		mg/L		77	50 - 120	9	26
Motor Oil (>C24-C36)	2.00	1.94		mg/L		97	64 - 120	1	24
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	98		50 - 150						

Lab Sample ID: 580-91007-1 MS
Matrix: Water
Analysis Batch: 317933

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 317786

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	ND		2.10	1.53		mg/L		73	50 - 120
Motor Oil (>C24-C36)	ND		2.10	1.86		mg/L		89	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Surrogate	MS %Recovery	MS Qualifier	Limits
<i>o</i> -Terphenyl	98		50 - 150

Lab Sample ID: 580-91007-1 MSD
Matrix: Water
Analysis Batch: 317933

Client Sample ID: Outfall #002
Prep Type: Total/NA
Prep Batch: 317786

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	ND		2.16	1.70		mg/L		79	50 - 120	11	26
Motor Oil (>C24-C36)	ND		2.16	1.94		mg/L		90	64 - 120	4	24

Surrogate	MSD %Recovery	MSD Qualifier	Limits
<i>o</i> -Terphenyl	93		50 - 150

Lab Sample ID: MB 580-318174/1-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/04/19 09:39	12/07/19 22:12	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/04/19 09:39	12/07/19 22:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	99		50 - 150	12/04/19 09:39	12/07/19 22:12	1

Lab Sample ID: LCS 580-318174/2-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		79	50 - 120
Motor Oil (>C24-C36)	2.00	1.80		mg/L		90	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	91		50 - 150

Lab Sample ID: LCSD 580-318174/3-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		83	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120	6	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	96		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91007-1

Date Collected: 11/21/19 11:00

Matrix: Water

Date Received: 11/23/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317673	11/26/19 17:47	W1T	TAL SEA
Total/NA	Prep	3510C			317779	11/27/19 09:09	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	317968	12/02/19 22:01	E1L	TAL SEA
Total/NA	Prep	3510C	RE		318173	12/04/19 09:34	NRF	TAL SEA
Total/NA	Analysis	8270C SIM	RE	1	318294	12/05/19 17:38	ADB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	317821	11/28/19 03:04	DCV	TAL SEA
Total/NA	Prep	3510C			317786	11/27/19 09:14	NRF	TAL SEA
Total/NA	Cleanup	3630C			317861	11/27/19 15:59	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	317933	12/01/19 00:29	T1W	TAL SEA
Total/NA	Prep	3510C			318174	12/04/19 09:39	NRF	TAL SEA
Total/NA	Cleanup	3630C			318232	12/04/19 15:28	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	318441	12/07/19 23:13	T1W	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-91007-2

Date Collected: 11/21/19 00:01

Matrix: Water

Date Received: 11/23/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317673	11/26/19 15:12	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	317821	11/27/19 23:04	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20



Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91007-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91007-1	Outfall #002	Water	11/21/19 11:00	11/23/19 10:15	
580-91007-2	Trip Blank	Water	11/21/19 00:01	11/23/19 10:15	

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel: 253-922-2310
Fax: 253-922-5047
www.testamericainc.com

Rush
 Short Hold

Chain of Custody Record

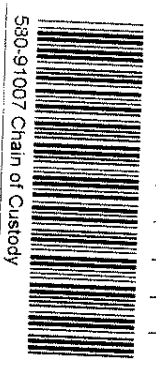
Client: Arcadis Client Contact: Opelie Enelle Date: 11-21-2019 Chain of Custody Number: 38570

Address: 1100 Olive Way, Suite 800 Telephone Number (Area Code)/Fax Number: _____ Lab Number: _____ Page 1 of 1

City: Seattle State: WA Zip Code: 98101 Sampler: Kiley Zauri Lab Contact: Elaine Walker Loc: 530

Project Name and Location (State): Edmonds Terminal Billing Contact: _____ Containers & Preservatives: _____ Spc: 91007
Contract/Purchase Order/Quote No.: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives					Analysis (Attach list if more space is needed)	Spc Con		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl			NaOH	ZnAc/ NaOH
Outfall #002	11-21-19	1100	X				2							PH = 8.13
Outfall #002 m/s/m/s/D	11-21-19	1105	X				2							PH = 8.13
TRIP BLANK	—	—	X											* Benzene and CPHS must have quantity less than 1 mg/L.



* Use standard
Spc

Therm. ID: AL Cor: 3.9 °C. Unc: 4.0 °C
Cooler Desc: LB FedEx: _____
Packing: Bub U.P.S.: _____
Cust. Seal: Yes No _____ Lab Count: _____
Blue Ice: Yes Dry: None Other: _____

Cooler: Yes No Cooler Temp: _____ Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown
Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other: STAT
QC Requirements (Specify): _____ Sample Disposal: Return To Client Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)
1. Relinquished By: Sign/Print Samuel Silva Date: 11-23-19 Time: 10:15 1. Received By: Sign/Print Ken Hobbs Date: 11-23-19 Time: 10:15
2. Relinquished By: Sign/Print _____ Date: _____ 2. Received By: Sign/Print _____ Date: _____
3. Relinquished By: Sign/Print _____ Date: _____ 3. Received By: Sign/Print _____ Date: _____

Comments: _____
DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy
TAL-8274-580 (02/10)

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91007-1

Login Number: 91007

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91104-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
12/17/2019 3:20:08 PM

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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Job ID: 580-91104-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91104-1

Receipt

Two samples were received on 11/27/2019 3:57 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.6° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Methods 8270C SIM, 8270D SIM: Laboratory control sample and Laboratory duplicate sample (LCS/LCSD) was inadvertently spiked with ten times the normal amount which required the samples to be diluted to be within the instrument calibration range. All other associated batch QC was within acceptance limits. (LCS 580-317963/2-A) and (LCSD 580-317963/3-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91104-1

Date Collected: 11/25/19 10:10

Matrix: Water

Date Received: 11/28/19 15:57

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/02/19 18:56	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	91		74 - 123					12/02/19 18:56	1
Toluene-d8 (Surr)	104		79 - 122					12/02/19 18:56	1
4-Bromofluorobenzene (Surr)	93		78 - 119					12/02/19 18:56	1
Dibromofluoromethane (Surr)	96		70 - 120					12/02/19 18:56	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120					12/02/19 18:56	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		12/02/19 10:21	12/03/19 15:17	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/02/19 10:21	12/03/19 15:17	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		12/02/19 10:21	12/03/19 15:17	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		12/02/19 10:21	12/03/19 15:17	1
Chrysene	ND		0.10	0.016	ug/L		12/02/19 10:21	12/03/19 15:17	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/02/19 10:21	12/03/19 15:17	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		12/02/19 10:21	12/03/19 15:17	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	63		53 - 120				12/02/19 10:21	12/03/19 15:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/03/19 06:53	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		50 - 150					12/03/19 06:53	1
Trifluorotoluene (Surr)	107		50 - 150					12/03/19 06:53	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.064	mg/L		12/05/19 09:21	12/07/19 23:38	1
Motor Oil (>C24-C36)	0.097	J	0.35	0.095	mg/L		12/05/19 09:21	12/07/19 23:38	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	92		50 - 150				12/05/19 09:21	12/07/19 23:38	1

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91104-2

Date Collected: 11/25/19 00:01

Matrix: Water

Date Received: 11/28/19 15:57

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/02/19 13:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123		12/02/19 13:26	1
Toluene-d8 (Surr)	104		79 - 122		12/02/19 13:26	1
4-Bromofluorobenzene (Surr)	92		78 - 119		12/02/19 13:26	1
Dibromofluoromethane (Surr)	99		70 - 120		12/02/19 13:26	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120		12/02/19 13:26	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/03/19 01:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		12/03/19 01:15	1
Trifluorotoluene (Surr)	95		50 - 150		12/03/19 01:15	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-317988/7
Matrix: Water
Analysis Batch: 317988

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/02/19 13:01	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	93		74 - 123					12/02/19 13:01	1
Toluene-d8 (Surr)	105		79 - 122					12/02/19 13:01	1
4-Bromofluorobenzene (Surr)	93		78 - 119					12/02/19 13:01	1
Dibromofluoromethane (Surr)	97		70 - 120					12/02/19 13:01	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					12/02/19 13:01	1

Lab Sample ID: LCS 580-317988/4
Matrix: Water
Analysis Batch: 317988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.95		ug/L		90	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	92		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	95		78 - 119				
Dibromofluoromethane (Surr)	99		70 - 120				
1,2-Dichloroethane-d4 (Surr)	98		70 - 120				

Lab Sample ID: LCSD 580-317988/5
Matrix: Water
Analysis Batch: 317988

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.93		ug/L		89	65 - 135	0	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	93		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	96		78 - 119						
Dibromofluoromethane (Surr)	98		70 - 120						
1,2-Dichloroethane-d4 (Surr)	98		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-317963/1-A
Matrix: Water
Analysis Batch: 318080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317963

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/02/19 10:21	12/03/19 13:58	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/02/19 10:21	12/03/19 13:58	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		12/02/19 10:21	12/03/19 13:58	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/02/19 10:21	12/03/19 13:58	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-317963/1-A
Matrix: Water
Analysis Batch: 318080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317963

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		12/02/19 10:21	12/03/19 13:58	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/02/19 10:21	12/03/19 13:58	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/02/19 10:21	12/03/19 13:58	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Terphenyl-d14	65		53 - 120				12/02/19 10:21	12/03/19 13:58	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Lab Sample ID: LCS 580-317963/2-A
Matrix: Water
Analysis Batch: 318782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317963

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits			
Benzo[a]anthracene - DL	40.0	37.2		ug/L		93	61 - 129			
Benzo[a]pyrene - DL	40.0	33.0		ug/L		82	56 - 130			
Benzo[b]fluoranthene - DL	40.0	32.5		ug/L		81	53 - 133			
Benzo[k]fluoranthene - DL	40.0	30.2		ug/L		76	51 - 132			
Chrysene - DL	40.0	30.6		ug/L		76	47 - 126			
Dibenz(a,h)anthracene - DL	40.0	35.0		ug/L		88	60 - 133			
Indeno[1,2,3-cd]pyrene - DL	40.0	40.2		ug/L		100	56 - 135			
Surrogate	LCS	LCS	Limits			D	%Rec	%Rec. Limits		
	%Recovery	Qualifier								
Terphenyl-d14 - DL	72		53 - 120							

Lab Sample ID: LCSD 580-317963/3-A
Matrix: Water
Analysis Batch: 318782

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 317963

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit	
Benzo[a]anthracene - DL	40.0	37.5		ug/L		94	61 - 129	1	31	
Benzo[a]pyrene - DL	40.0	33.2		ug/L		83	56 - 130	1	27	
Benzo[b]fluoranthene - DL	40.0	31.7		ug/L		79	53 - 133	2	25	
Benzo[k]fluoranthene - DL	40.0	31.4		ug/L		79	51 - 132	4	25	
Chrysene - DL	40.0	32.0		ug/L		80	47 - 126	4	23	
Dibenz(a,h)anthracene - DL	40.0	35.0		ug/L		88	60 - 133	0	25	
Indeno[1,2,3-cd]pyrene - DL	40.0	40.2		ug/L		100	56 - 135	0	24	
Surrogate	LCSD	LCSD	Limits			D	%Rec	%Rec. Limits	RPD	Limit
	%Recovery	Qualifier								
Terphenyl-d14 - DL	75		53 - 120							

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-318033/7
Matrix: Water
Analysis Batch: 318033

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/03/19 00:02	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		50 - 150					12/03/19 00:02	1
Trifluorotoluene (Surr)	109		50 - 150					12/03/19 00:02	1

Lab Sample ID: LCS 580-318033/8
Matrix: Water
Analysis Batch: 318033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.913		mg/L		91	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	97		50 - 150				
Trifluorotoluene (Surr)	91		50 - 150				

Lab Sample ID: LCSD 580-318033/9
Matrix: Water
Analysis Batch: 318033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.973		mg/L		97	79 - 120	6	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	111		50 - 150						
Trifluorotoluene (Surr)	103		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-318268/1-B
Matrix: Water
Analysis Batch: 318436

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318268

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/05/19 09:21	12/07/19 22:33	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/05/19 09:21	12/07/19 22:33	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150				12/05/19 09:21	12/07/19 22:33	1

Lab Sample ID: LCS 580-318268/2-B
Matrix: Water
Analysis Batch: 318436

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318268

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.98		mg/L		99	50 - 120
Motor Oil (>C24-C36)	2.00	1.99		mg/L		99	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	109		50 - 150

Lab Sample ID: LCSD 580-318268/3-B
Matrix: Water
Analysis Batch: 318436

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318268

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCSD</i> <i>Result</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec.</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
#2 Diesel (C10-C24)	2.00	1.89		mg/L		95	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120	4	24

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	105		50 - 150



Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Client Sample ID: Outfall #002

Date Collected: 11/25/19 10:10

Date Received: 11/28/19 15:57

Lab Sample ID: 580-91104-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317988	12/02/19 18:56	TL1	TAL SEA
Total/NA	Prep	3510C			317963	12/02/19 10:21	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	318080	12/03/19 15:17	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318033	12/03/19 06:53	TL1	TAL SEA
Total/NA	Prep	3510C			318268	12/05/19 09:21	NRF	TAL SEA
Total/NA	Cleanup	3630C			318315	12/05/19 14:10	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	318436	12/07/19 23:38	CJ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 11/25/19 00:01

Date Received: 11/28/19 15:57

Lab Sample ID: 580-91104-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	317988	12/02/19 13:26	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318033	12/03/19 01:15	TL1	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91104-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91104-1	Outfall #002	Water	11/25/19 10:10	11/28/19 15:57	
580-91104-2	Trip Blank	Water	11/25/19 00:01	11/28/19 15:57	

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Client Arcadis	Client Contact Ophele Encelle	Date 11/25/14	Chain of Custody Number 38571
Address 1100 Olive Way, Suite 800	Telephone Number (Area Code)/Fax Number 206-726-4730	Lab Number	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Brett Tobin	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)	Loc: 580 91104 ons/iept
Project Name and Location (State) Edmonds Terminal			Billing Contact			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Analysis	Notes	
			Air	Aqueous	Sed.	Soil	Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
Outfall #002	11/25/14	1010	X												pH = 8.16 * Benzene + CPAH w/quantitative level less than 1ug/L * Use standard SGL
Trip Blank	-	-	X												



Therm. ID: 41 Cor: 5.6° Unc: 5.7°
 Cooler Dsc: Sm Blue
 Packing: buo FedEx: _____
 Cust. Seal: Yes X No _____ UPS: _____
 Blue Ice, Wet, Dry, None Lab Cour: _____
 Other: PiCe

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other STAT

Relinquished By Sign/Print	Date	Time	Received By Sign/Print	Date	Time
<i>[Signature]</i>	11/27/14	1154	<i>[Signature]</i>	11/27/14	1154
<i>[Signature]</i>	11/27/14	1557	<i>[Signature]</i>	11/27/14	1557

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91104-1

Login Number: 91104

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91155-1
Client Project/Site: Chevron Edmonds Terminal
Sampling Event: Outfall#2
Revision: 1

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
1/7/2020 1:04:39 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Job ID: 580-91155-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91155-1

Revision 1: January 7, 2020

Per client request the cPAHs were reanalyzed for sample Outfall #002 (580-91155-1) as the sample was higher than historical results. The sample was initially run at a 10X dilution. The sample has been reanalyzed at no dilution and the report has been revised.

Receipt

Two samples were received on 12/3/2019 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91155-1

Date Collected: 12/02/19 12:45

Matrix: Water

Date Received: 12/03/19 13:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			12/04/19 20:02	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123					12/04/19 20:02	1
Toluene-d8 (Surr)	102		79 - 122					12/04/19 20:02	1
4-Bromofluorobenzene (Surr)	92		78 - 119					12/04/19 20:02	1
Dibromofluoromethane (Surr)	98		70 - 120					12/04/19 20:02	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 120					12/04/19 20:02	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		12/04/19 09:34	01/06/20 18:10	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		12/04/19 09:34	01/06/20 18:10	1
Benzo[b]fluoranthene	ND		0.055	0.012	ug/L		12/04/19 09:34	01/06/20 18:10	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		12/04/19 09:34	01/06/20 18:10	1
Chrysene	ND		0.11	0.018	ug/L		12/04/19 09:34	01/06/20 18:10	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L		12/04/19 09:34	01/06/20 18:10	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		12/04/19 09:34	01/06/20 18:10	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	68		53 - 120				12/04/19 09:34	01/06/20 18:10	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/06/19 01:29	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150					12/06/19 01:29	1
Trifluorotoluene (Surr)	92		50 - 150					12/06/19 01:29	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.071	mg/L		12/04/19 09:39	12/07/19 23:33	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		12/04/19 09:39	12/07/19 23:33	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150				12/04/19 09:39	12/07/19 23:33	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91155-2

Date Collected: 12/02/19 00:01

Matrix: Water

Date Received: 12/03/19 13:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			12/04/19 15:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		74 - 123		12/04/19 15:50	1
Toluene-d8 (Surr)	109		79 - 122		12/04/19 15:50	1
4-Bromofluorobenzene (Surr)	91		78 - 119		12/04/19 15:50	1
Dibromofluoromethane (Surr)	98		70 - 120		12/04/19 15:50	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120		12/04/19 15:50	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/05/19 22:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		50 - 150		12/05/19 22:16	1
Trifluorotoluene (Surr)	95		50 - 150		12/05/19 22:16	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-318185/7
Matrix: Water
Analysis Batch: 318185

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			12/04/19 12:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		74 - 123		12/04/19 12:59	1
Toluene-d8 (Surr)	103		79 - 122		12/04/19 12:59	1
4-Bromofluorobenzene (Surr)	93		78 - 119		12/04/19 12:59	1
Dibromofluoromethane (Surr)	99		70 - 120		12/04/19 12:59	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120		12/04/19 12:59	1

Lab Sample ID: LCS 580-318185/4
Matrix: Water
Analysis Batch: 318185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.16		ug/L		92	65 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	92		74 - 123
Toluene-d8 (Surr)	103		79 - 122
4-Bromofluorobenzene (Surr)	94		78 - 119
Dibromofluoromethane (Surr)	98		70 - 120
1,2-Dichloroethane-d4 (Surr)	91		70 - 120

Lab Sample ID: LCSD 580-318185/5
Matrix: Water
Analysis Batch: 318185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.89		ug/L		89	65 - 135	3	33

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	93		74 - 123
Toluene-d8 (Surr)	103		79 - 122
4-Bromofluorobenzene (Surr)	91		78 - 119
Dibromofluoromethane (Surr)	100		70 - 120
1,2-Dichloroethane-d4 (Surr)	94		70 - 120

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-318173/1-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		12/04/19 09:33	12/05/19 12:24	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/04/19 09:33	12/05/19 12:24	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-318173/1-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		12/04/19 09:33	12/05/19 12:24	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/04/19 09:33	12/05/19 12:24	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/04/19 09:33	12/05/19 12:24	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	66		53 - 120				12/04/19 09:33	12/05/19 12:24	1

Lab Sample ID: LCS 580-318173/2-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318173

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.41		ug/L		85	61 - 129
Benzo[a]pyrene	4.00	3.18		ug/L		80	56 - 130
Benzo[b]fluoranthene	4.00	2.57		ug/L		64	53 - 133
Benzo[k]fluoranthene	4.00	3.21		ug/L		80	51 - 132
Chrysene	4.00	3.04		ug/L		76	47 - 126
Dibenz(a,h)anthracene	4.00	3.18		ug/L		79	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.28		ug/L		82	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	64		53 - 120				

Lab Sample ID: LCSD 580-318173/3-A
Matrix: Water
Analysis Batch: 318294

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318173

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.41		ug/L		85	61 - 129	0	31
Benzo[a]pyrene	4.00	3.10		ug/L		77	56 - 130	3	27
Benzo[b]fluoranthene	4.00	2.59		ug/L		65	53 - 133	1	25
Benzo[k]fluoranthene	4.00	3.28		ug/L		82	51 - 132	2	25
Chrysene	4.00	2.99		ug/L		75	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	3.01		ug/L		75	60 - 133	5	25
Indeno[1,2,3-cd]pyrene	4.00	3.17		ug/L		79	56 - 135	4	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	60		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-318338/22
Matrix: Water
Analysis Batch: 318338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/05/19 21:04	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-318338/22
Matrix: Water
Analysis Batch: 318338

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150		12/05/19 21:04	1
Trifluorotoluene (Surr)	95		50 - 150		12/05/19 21:04	1

Lab Sample ID: LCS 580-318338/23
Matrix: Water
Analysis Batch: 318338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.968		mg/L		97	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		50 - 150
Trifluorotoluene (Surr)	104		50 - 150

Lab Sample ID: LCSD 580-318338/24
Matrix: Water
Analysis Batch: 318338

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.911		mg/L		91	79 - 120	6	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	91		50 - 150

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-318174/1-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 318174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/04/19 09:39	12/07/19 22:12	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/04/19 09:39	12/07/19 22:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150	12/04/19 09:39	12/07/19 22:12	1

Lab Sample ID: LCS 580-318174/2-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2.00	1.57		mg/L		79	50 - 120
Motor Oil (>C24-C36)	2.00	1.80		mg/L		90	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-318174/2-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 318174

<i>Surrogate</i>	<i>LCS</i> <i>%Recovery</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	91		50 - 150

Lab Sample ID: LCSD 580-318174/3-B
Matrix: Water
Analysis Batch: 318441

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 318174

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCSD</i> <i>Result</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
#2 Diesel (C10-C24)	2.00	1.67		mg/L		83	50 - 120	6	26
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120	6	24

<i>Surrogate</i>	<i>LCSD</i> <i>%Recovery</i>	<i>LCSD</i> <i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	96		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Client Sample ID: Outfall #002

Date Collected: 12/02/19 12:45

Date Received: 12/03/19 13:25

Lab Sample ID: 580-91155-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	318185	12/04/19 20:02	T1W	TAL SEA
Total/NA	Prep	3510C			318173	12/04/19 09:34	NRF	TAL SEA
Total/NA	Analysis	8270D SIM		1	320033	01/06/20 18:10	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318338	12/06/19 01:29	DCV	TAL SEA
Total/NA	Prep	3510C			318174	12/04/19 09:39	NRF	TAL SEA
Total/NA	Cleanup	3630C			318232	12/04/19 15:28	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	318441	12/07/19 23:33	T1W	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 12/02/19 00:01

Date Received: 12/03/19 13:25

Lab Sample ID: 580-91155-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	318185	12/04/19 15:50	T1W	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318338	12/05/19 22:16	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91155-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91155-1	Outfall #002	Water	12/02/19 12:45	12/03/19 13:25	
580-91155-2	Trip Blank	Water	12/02/19 00:01	12/03/19 13:25	

- 1
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- 5
- 6
- 7
- 8
- 9
- 10
- 11

Client Arcadis		Client Contact OPHELIE ENCELLE		Date 12-2-2019	Chain of Custody Number 38448
Address 1100 Olive Way, Suite 800		Telephone Number (Area Code)/Fax Number 206-726-4730		Lab Number 91155	Page 1 of 1

City SEATTLE	State WA	Zip Code 98101	Sampler KILEY ZAUBI	Lab Contact RAINE WALKER	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Project Name and Location (State) EDMONDS TERMINAL			Billing Contact			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives						Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
Outfall #002	12-2-2019	1245		X			2			8					PH =
TRIP BLANK	-	-		X						6					



580-91155 Chain of Custody

Therm. ID: **A1** Cor: **5.0** ° Unc: **5.1** °
Cooler Dsc: **Sm Blue**
Packing: **BUB** FedEx: _____
Cust. Seal: **Yes** No _____ UPS: _____
Blue Ice: **Wet**, Dry, None Other: **Pri Cov** Lab Cour: _____

*** Benzene and CPHs w/quantitative level less than 1ug/L**

*** Use standard SGC**

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

1. Relinquished By Sign/Print Kiley Zaubi	Date 12/3/2019	Time 1210	1. Received By Sign/Print Guillermo Powell	Date 12/3/19	Time 1210
2. Relinquished By Sign/Print Guillermo Powell	Date 12/3/19	Time 1325	2. Received By Sign/Print Tom Blankinship	Date 12/3/19	Time 1325
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91155-1

Login Number: 91155

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91456-1
Client Project/Site: Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
12/27/2019 2:36:41 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Job ID: 580-91456-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91456-1

Comments

No additional comments.

Receipt

The samples were received on 12/13/2019 2:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Methods 8270C SIM, 8270D SIM: The method blank for preparation batch 580-319022 and analytical batch 580-319466 contained several analytes above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91456-1

Date Collected: 12/12/19 11:50

Matrix: Water

Date Received: 12/13/19 14:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/18/19 16:40	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	106		74 - 123					12/18/19 16:40	1
Toluene-d8 (Surr)	105		79 - 122					12/18/19 16:40	1
4-Bromofluorobenzene (Surr)	102		78 - 119					12/18/19 16:40	1
Dibromofluoromethane (Surr)	98		70 - 120					12/18/19 16:40	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 120					12/18/19 16:40	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.016	J B	0.051	0.014	ug/L		12/17/19 11:05	12/22/19 23:35	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/17/19 11:05	12/22/19 23:35	1
Benzo[b]fluoranthene	0.013	J B	0.051	0.011	ug/L		12/17/19 11:05	12/22/19 23:35	1
Benzo[k]fluoranthene	0.012	J B	0.051	0.012	ug/L		12/17/19 11:05	12/22/19 23:35	1
Chrysene	ND		0.10	0.016	ug/L		12/17/19 11:05	12/22/19 23:35	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/17/19 11:05	12/22/19 23:35	1
Indeno[1,2,3-cd]pyrene	0.015	J B	0.051	0.014	ug/L		12/17/19 11:05	12/22/19 23:35	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	61		53 - 120				12/17/19 11:05	12/22/19 23:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/17/19 03:15	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		50 - 150					12/17/19 03:15	1
Trifluorotoluene (Surr)	107		50 - 150					12/17/19 03:15	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/24/19 06:50	12/27/19 06:58	1
Motor Oil (>C24-C36)	ND		0.35	0.095	mg/L		12/24/19 06:50	12/27/19 06:58	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150				12/24/19 06:50	12/27/19 06:58	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91456-2

Date Collected: 12/12/19 00:01

Matrix: Water

Date Received: 12/13/19 14:40

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/18/19 12:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123		12/18/19 12:55	1
Toluene-d8 (Surr)	102		79 - 122		12/18/19 12:55	1
4-Bromofluorobenzene (Surr)	105		78 - 119		12/18/19 12:55	1
Dibromofluoromethane (Surr)	105		70 - 120		12/18/19 12:55	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 120		12/18/19 12:55	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/16/19 20:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150		12/16/19 20:49	1
Trifluorotoluene (Surr)	103		50 - 150		12/16/19 20:49	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-319142/6

Matrix: Water

Analysis Batch: 319142

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/18/19 12:19	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					12/18/19 12:19	1
Toluene-d8 (Surr)	104		79 - 122					12/18/19 12:19	1
4-Bromofluorobenzene (Surr)	101		78 - 119					12/18/19 12:19	1
Dibromofluoromethane (Surr)	101		70 - 120					12/18/19 12:19	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 120					12/18/19 12:19	1

Lab Sample ID: LCS 580-319142/3

Matrix: Water

Analysis Batch: 319142

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.1		ug/L		101	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	105		74 - 123				
Toluene-d8 (Surr)	104		79 - 122				
4-Bromofluorobenzene (Surr)	103		78 - 119				
Dibromofluoromethane (Surr)	100		70 - 120				
1,2-Dichloroethane-d4 (Surr)	94		70 - 120				

Lab Sample ID: LCSD 580-319142/4

Matrix: Water

Analysis Batch: 319142

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	10.2		ug/L		102	65 - 135	1	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	104		74 - 123						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	101		78 - 119						
Dibromofluoromethane (Surr)	100		70 - 120						
1,2-Dichloroethane-d4 (Surr)	93		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-319022/1-A

Matrix: Water

Analysis Batch: 319466

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319022

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.0157	J	0.050	0.014	ug/L		12/17/19 11:05	12/22/19 17:30	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/17/19 11:05	12/22/19 17:30	1
Benzo[b]fluoranthene	0.0149	J	0.050	0.011	ug/L		12/17/19 11:05	12/22/19 17:30	1
Benzo[k]fluoranthene	0.0140	J	0.050	0.012	ug/L		12/17/19 11:05	12/22/19 17:30	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-319022/1-A

Matrix: Water

Analysis Batch: 319466

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319022

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chrysene	ND		0.10	0.016	ug/L		12/17/19 11:05	12/22/19 17:30	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/17/19 11:05	12/22/19 17:30	1
Indeno[1,2,3-cd]pyrene	0.0155	J	0.050	0.014	ug/L		12/17/19 11:05	12/22/19 17:30	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	63		53 - 120	12/17/19 11:05	12/22/19 17:30	1

Lab Sample ID: LCS 580-319022/2-A

Matrix: Water

Analysis Batch: 319466

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319022

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzo[a]anthracene	4.00	3.02		ug/L		76	61 - 129
Benzo[a]pyrene	4.00	2.73		ug/L		68	56 - 130
Benzo[b]fluoranthene	4.00	2.78		ug/L		69	53 - 133
Benzo[k]fluoranthene	4.00	2.52		ug/L		63	51 - 132
Chrysene	4.00	2.63		ug/L		66	47 - 126
Dibenz(a,h)anthracene	4.00	2.92		ug/L		73	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.26		ug/L		82	56 - 135

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	60		53 - 120

Lab Sample ID: LCSD 580-319022/3-A

Matrix: Water

Analysis Batch: 319466

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 319022

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	4.00	3.10		ug/L		77	61 - 129	2	31
Benzo[a]pyrene	4.00	2.80		ug/L		70	56 - 130	2	27
Benzo[b]fluoranthene	4.00	2.88		ug/L		72	53 - 133	4	25
Benzo[k]fluoranthene	4.00	2.54		ug/L		64	51 - 132	1	25
Chrysene	4.00	2.61		ug/L		65	47 - 126	1	23
Dibenz(a,h)anthracene	4.00	2.99		ug/L		75	60 - 133	2	25
Indeno[1,2,3-cd]pyrene	4.00	3.35		ug/L		84	56 - 135	3	24

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	65		53 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-318987/28

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			12/17/19 04:03	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-318987/28

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		50 - 150		12/17/19 04:03	1
Trifluorotoluene (Surr)	98		50 - 150		12/17/19 04:03	1

Lab Sample ID: MB 580-318987/7

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			12/16/19 19:37	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	99		50 - 150		12/16/19 19:37	1
Trifluorotoluene (Surr)	98		50 - 150		12/16/19 19:37	1

Lab Sample ID: LCS 580-318987/29

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Gasoline	1.00	0.927		mg/L		93	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		50 - 150
Trifluorotoluene (Surr)	90		50 - 150

Lab Sample ID: LCS 580-318987/8

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Gasoline	1.00	0.977		mg/L		98	79 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	106		50 - 150
Trifluorotoluene (Surr)	101		50 - 150

Lab Sample ID: LCSD 580-318987/30

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	Limit
		Result	Qualifier						
Gasoline	1.00	0.873		mg/L		87	79 - 120	6	10

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		50 - 150
Trifluorotoluene (Surr)	91		50 - 150

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-318987/9

Matrix: Water

Analysis Batch: 318987

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.948		mg/L		95	79 - 120	3	10
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	104		50 - 150						
Trifluorotoluene (Surr)	93		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-319572/1-B

Matrix: Water

Analysis Batch: 319677

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/24/19 06:50	12/27/19 04:16	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/24/19 06:50	12/27/19 04:16	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	105		50 - 150				12/24/19 06:50	12/27/19 04:16	1

Lab Sample ID: LCS 580-319572/2-B

Matrix: Water

Analysis Batch: 319677

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2.00	1.89		mg/L		95	50 - 120		
Motor Oil (>C24-C36)	2.00	1.95		mg/L		98	64 - 120		
Surrogate	%Recovery	LCS Qualifier	Limits						
o-Terphenyl	93		50 - 150						

Lab Sample ID: LCSD 580-319572/3-B

Matrix: Water

Analysis Batch: 319677

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 319572

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.72		mg/L		86	50 - 120	10	26
Motor Oil (>C24-C36)	2.00	1.76		mg/L		88	64 - 120	11	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	90		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
 Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91456-1

Date Collected: 12/12/19 11:50

Matrix: Water

Date Received: 12/13/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319142	12/18/19 16:40	W1T	TAL SEA
Total/NA	Prep	3510C			319022	12/17/19 11:05	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	319466	12/22/19 23:35	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318987	12/17/19 03:15	DCV	TAL SEA
Total/NA	Prep	3510C			319572	12/24/19 06:50	NRF	TAL SEA
Total/NA	Cleanup	3630C			319591	12/24/19 12:44	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	319677	12/27/19 06:58	ERZ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-91456-2

Date Collected: 12/12/19 00:01

Matrix: Water

Date Received: 12/13/19 14:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319142	12/18/19 12:55	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	318987	12/16/19 20:49	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20



Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Edmonds Terminal

Job ID: 580-91456-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91456-1	Outfall #002	Water	12/12/19 11:50	12/13/19 14:40	
580-91456-2	Trip Blank	Water	12/12/19 00:01	12/13/19 14:40	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush Short Hold

Chain of Custody Record

Client Arcadis		Client Contact Ophélie Encelle			Date 12/12/2019	Chain of Custody Number 38462						
Address 1100 olive way, suite 800		Telephone Number (Area Code)/Fax Number			Lab Number	Page 1 of 1						
City Seattle	State WA	Zip Code 98101	Sampler Daniel sly Gilbert	Lab Contact Elaine walker	Analysis (Attach list if more space is needed)							
Project Name and Location (State) Edmonds Terminal			Billing Contact		Loc: 580 91456							
Contract/Purchase Order/Quote No.			Matrix		Containers & Preservatives							
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sec.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
Outfall #002	12/12/19	1150	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Trip Blank	-	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<p>Benzene EPA 624 6RO NWTPH-DX PRO + HO NWTPH-DX cPAHs 82700</p>												
<p>PH = 8.12 * Benzene and cPAHs must have a quantitative less than 1 mg/L * use standard 56C</p>												



580-91456 Chain of Custody

Therm. ID: **IR6** Cor: **34**° Unc: **3.1**°
Cooler Dsc: **SB** FedEx: _____
Packing: **BUB** UPS: _____
Cust. Seal: Yes No _____ Lab Cour:
Blue Ice, Wet, Dry, None Other: _____

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____		QC Requirements (Specify)	
1. Relinquished By Sign/Print [Signature] KILEY ZAUBI	Date 12/13/19 0900 Time 0900	1. Received By Sign/Print [Signature] Q. Powell	Date 12-13-19 Time 12.15
2. Relinquished By Sign/Print [Signature] Q. Powell	Date 12/13/19 Time 2:40	2. Received By Sign/Print [Signature]	Date 12-13-19 Time 1440
3. Relinquished By Sign/Print	Date _____ Time _____	3. Received By Sign/Print	Date _____ Time _____

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91456-1

Login Number: 91456

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91515-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles

M. Elaine Walker

Authorized for release by:
1/17/2020 10:50:39 AM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Job ID: 580-91515-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91515-1

Receipt

Two samples were received on 12/17/2019 2:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Methods 8270C SIM, 8270D SIM: (LCSD 580-319260/3-A) recovered outside control limits, low-biased, for Benzo[a]anthracene. The associated sample was re-extracted outside of holding time. Both sets of data are reported.

Methods 8270C SIM, 8270D SIM: Surrogate recovery for the following samples were outside upper control limits: (LCS 580-320310/2-A), (LCSD 580-320310/3-A), and (MB 580-320310/1-A). These samples were re-extracted outside of holding time due to LCS/LCSD failures for Anthracene and/or Benzo[a]anthracene. Samples with hits for these analytes also contain matrix interference. Two sets of data for these failing analytes are reported.

Methods 8270C SIM, 8270D SIM: Outfall #002 (580-91515-1) was re-extracted outside of holding time due to recovery failures in the QC of the initial extraction (LCS low biased for Benzo(a)anthracene). For the affected analyte, two sets of data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

Method NWTPH-Dx: Surrogate o-Terphenyl recovery for the following sample was outside the upper control limit: Outfall #002 (580-91515-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91515-1

Date Collected: 12/16/19 14:20

Matrix: Water

Date Received: 12/17/19 14:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L	-		12/19/19 17:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	102		74 - 123					12/19/19 17:57	1
Toluene-d8 (Surr)	105		79 - 122					12/19/19 17:57	1
4-Bromofluorobenzene (Surr)	96		78 - 119					12/19/19 17:57	1
Dibromofluoromethane (Surr)	101		70 - 120					12/19/19 17:57	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					12/19/19 17:57	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	*	0.053	0.015	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Chrysene	ND		0.11	0.017	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Dibenz(a,h)anthracene	ND		0.11	0.028	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L	-	12/19/19 12:53	12/20/19 15:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		53 - 120				12/19/19 12:53	12/20/19 15:42	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - RERA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.055	0.015	ug/L	-	01/09/20 14:58	01/15/20 18:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	62		53 - 120				01/09/20 14:58	01/15/20 18:23	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L	-		12/20/19 03:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		50 - 150					12/20/19 03:39	1
Trifluorotoluene (Surr)	95		50 - 150					12/20/19 03:39	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L	-	12/26/19 14:49	12/27/19 06:11	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L	-	12/26/19 14:49	12/27/19 06:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	165	X	50 - 150				12/26/19 14:49	12/27/19 06:11	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91515-2

Date Collected: 12/16/19 00:01

Matrix: Water

Date Received: 12/17/19 14:15

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/19/19 18:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123		12/19/19 18:22	1
Toluene-d8 (Surr)	104		79 - 122		12/19/19 18:22	1
4-Bromofluorobenzene (Surr)	101		78 - 119		12/19/19 18:22	1
Dibromofluoromethane (Surr)	98		70 - 120		12/19/19 18:22	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120		12/19/19 18:22	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/19/19 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		50 - 150		12/19/19 18:01	1
Trifluorotoluene (Surr)	99		50 - 150		12/19/19 18:01	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-318966/1-A
Matrix: Water
Analysis Batch: 319224

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/19/19 12:33	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123					12/19/19 12:33	1
Toluene-d8 (Surr)	103		79 - 122					12/19/19 12:33	1
4-Bromofluorobenzene (Surr)	101		78 - 119					12/19/19 12:33	1
Dibromofluoromethane (Surr)	97		70 - 120					12/19/19 12:33	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120					12/19/19 12:33	1

Lab Sample ID: LCS 580-318966/2-A
Matrix: Water
Analysis Batch: 319224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	104		74 - 123				
Toluene-d8 (Surr)	103		79 - 122				
4-Bromofluorobenzene (Surr)	101		78 - 119				
Dibromofluoromethane (Surr)	98		70 - 120				
1,2-Dichloroethane-d4 (Surr)	95		70 - 120				

Lab Sample ID: LCSD 580-318966/3-A
Matrix: Water
Analysis Batch: 319224

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	65 - 135	0	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	105		74 - 123						
Toluene-d8 (Surr)	106		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 119						
Dibromofluoromethane (Surr)	97		70 - 120						
1,2-Dichloroethane-d4 (Surr)	91		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-319260/1-A
Matrix: Water
Analysis Batch: 319346

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 319260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/19/19 12:53	12/20/19 12:02	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/19/19 12:53	12/20/19 12:02	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		12/19/19 12:53	12/20/19 12:02	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/19/19 12:53	12/20/19 12:02	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-319260/1-A
Matrix: Water
Analysis Batch: 319346

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 319260

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		12/19/19 12:53	12/20/19 12:02	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/19/19 12:53	12/20/19 12:02	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/19/19 12:53	12/20/19 12:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	116		53 - 120	12/19/19 12:53	12/20/19 12:02	1

Lab Sample ID: LCS 580-319260/2-A
Matrix: Water
Analysis Batch: 319346

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 319260

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	2.75		ug/L		69	61 - 129
Benzo[a]pyrene	4.00	3.19		ug/L		80	56 - 130
Benzo[b]fluoranthene	4.00	3.17		ug/L		79	53 - 133
Benzo[k]fluoranthene	4.00	3.42		ug/L		86	51 - 132
Chrysene	4.00	2.82		ug/L		70	47 - 126
Dibenz(a,h)anthracene	4.00	3.31		ug/L		83	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.50		ug/L		88	56 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	95		53 - 120

Lab Sample ID: LCSD 580-319260/3-A
Matrix: Water
Analysis Batch: 319346

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 319260

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	2.22	*	ug/L		56	61 - 129	21	31
Benzo[a]pyrene	4.00	2.52		ug/L		63	56 - 130	24	27
Benzo[b]fluoranthene	4.00	2.54		ug/L		64	53 - 133	22	25
Benzo[k]fluoranthene	4.00	2.72		ug/L		68	51 - 132	23	25
Chrysene	4.00	2.28		ug/L		57	47 - 126	21	23
Dibenz(a,h)anthracene	4.00	2.61		ug/L		65	60 - 133	23	25
Indeno[1,2,3-cd]pyrene	4.00	2.75		ug/L		69	56 - 135	24	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	75		53 - 120

Lab Sample ID: MB 580-320310/1-A
Matrix: Water
Analysis Batch: 320367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/09/20 14:57	01/10/20 13:54	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/09/20 14:57	01/10/20 13:54	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/09/20 14:57	01/10/20 13:54	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/09/20 14:57	01/10/20 13:54	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-320310/1-A
Matrix: Water
Analysis Batch: 320367

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 320310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		01/09/20 14:57	01/10/20 13:54	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		01/09/20 14:57	01/10/20 13:54	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/09/20 14:57	01/10/20 13:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	134	X	53 - 120				01/09/20 14:57	01/10/20 13:54	1

Lab Sample ID: LCS 580-320310/2-A
Matrix: Water
Analysis Batch: 320367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 320310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.50		ug/L		88	61 - 129
Benzo[a]pyrene	4.00	3.92		ug/L		98	56 - 130
Benzo[b]fluoranthene	4.00	4.35		ug/L		109	53 - 133
Benzo[k]fluoranthene	4.00	3.94		ug/L		99	51 - 132
Chrysene	4.00	3.29		ug/L		82	47 - 126
Dibenz(a,h)anthracene	4.00	4.03		ug/L		101	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	4.30		ug/L		107	56 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14	138	X	53 - 120				

Lab Sample ID: LCSD 580-320310/3-A
Matrix: Water
Analysis Batch: 320367

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 320310

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.59		ug/L		90	61 - 129	2	31
Benzo[a]pyrene	4.00	3.91		ug/L		98	56 - 130	0	27
Benzo[b]fluoranthene	4.00	4.35		ug/L		109	53 - 133	0	25
Benzo[k]fluoranthene	4.00	3.97		ug/L		99	51 - 132	1	25
Chrysene	4.00	3.36		ug/L		84	47 - 126	2	23
Dibenz(a,h)anthracene	4.00	4.04		ug/L		101	60 - 133	0	25
Indeno[1,2,3-cd]pyrene	4.00	4.40		ug/L		110	56 - 135	2	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	143	X	53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-319294/7
Matrix: Water
Analysis Batch: 319294

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/19/19 14:48	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-319294/7
Matrix: Water
Analysis Batch: 319294

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	106		50 - 150		12/19/19 14:48	1
Trifluorotoluene (Surr)	109		50 - 150		12/19/19 14:48	1

Lab Sample ID: LCS 580-319294/8
Matrix: Water
Analysis Batch: 319294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		50 - 150
Trifluorotoluene (Surr)	94		50 - 150

Lab Sample ID: LCSD 580-319294/9
Matrix: Water
Analysis Batch: 319294

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	108		50 - 150
Trifluorotoluene (Surr)	100		50 - 150

Lab Sample ID: MB 580-319297/33
Matrix: Water
Analysis Batch: 319297

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline	ND		0.25	0.10	mg/L			12/20/19 01:14	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	101		50 - 150		12/20/19 01:14	1
Trifluorotoluene (Surr)	90		50 - 150		12/20/19 01:14	1

Lab Sample ID: LCS 580-319297/34
Matrix: Water
Analysis Batch: 319297

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		50 - 150
Trifluorotoluene (Surr)	99		50 - 150

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-319297/35
Matrix: Water
Analysis Batch: 319297

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1.00	0.904		mg/L		90	79 - 120	3	10
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	110		50 - 150						
Trifluorotoluene (Surr)	108		50 - 150						

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-319666/1-B
Matrix: Water
Analysis Batch: 319632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 319666

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/26/19 12:45	12/27/19 05:06	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/26/19 12:45	12/27/19 05:06	1
Surrogate									
	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150				12/26/19 12:45	12/27/19 05:06	1

Lab Sample ID: LCS 580-319666/2-B
Matrix: Water
Analysis Batch: 319632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 319666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2.00	1.95		mg/L		97	50 - 120		
Motor Oil (>C24-C36)	2.00	2.25		mg/L		112	64 - 120		
Surrogate									
	%Recovery	LCS Qualifier	Limits						
o-Terphenyl	85		50 - 150						

Lab Sample ID: LCSD 580-319666/3-B
Matrix: Water
Analysis Batch: 319632

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 319666

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2.00	1.92		mg/L		96	50 - 120	1	26
Motor Oil (>C24-C36)	2.00	2.21		mg/L		111	64 - 120	2	24
Surrogate									
	%Recovery	LCSD Qualifier	Limits						
o-Terphenyl	93		50 - 150						

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Client Sample ID: Outfall #002

Date Collected: 12/16/19 14:20

Date Received: 12/17/19 14:15

Lab Sample ID: 580-91515-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319224	12/19/19 17:57	APR	TAL SEA
Total/NA	Prep	3510C			319260	12/19/19 12:53	FCG	TAL SEA
Total/NA	Analysis	8270C SIM		1	319346	12/20/19 15:42	W1T	TAL SEA
Total/NA	Prep	3510C	RERA		320310	01/09/20 14:58	PRO	TAL SEA
Total/NA	Analysis	8270C SIM	RERA	1	320689	01/15/20 18:23	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	319297	12/20/19 03:39	DCV	TAL SEA
Total/NA	Prep	3510C			319666	12/26/19 14:49	NRF	TAL SEA
Total/NA	Cleanup	3630C			319688	12/26/19 15:17	NRF	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	319632	12/27/19 06:11	ERZ	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 12/16/19 00:01

Date Received: 12/17/19 14:15

Lab Sample ID: 580-91515-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319224	12/19/19 18:22	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	319294	12/19/19 18:01	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91515-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91515-1	Outfall #002	Water	12/16/19 14:20	12/17/19 14:15	
580-91515-2	Trip Blank	Water	12/16/19 00:01	12/17/19 14:15	

1

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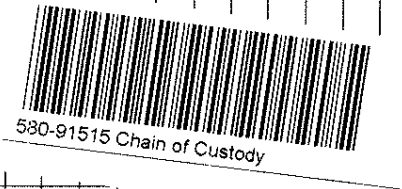
11

Client Arcadis	Client Contact Ophélie Encelle	Date 12-16-2019	Chain of Custody Number 31865
Address 1100 Olive Way, Suite 800	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1

City Seattle	State WA	Zip Code 98101	Sampler Kiley Zaubi	Lab Contact Elaine Walker	Analysis (Attach list if more space is needed)	Loc: 580 91515
Project Name and Location (State) Edmonds Terminal			Billing Contact			

Contract/Purchase Order/Quote No.	Matrix	Containers & Preservatives
-----------------------------------	--------	----------------------------

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives								pH				
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc2/NaOH	Other	Other		Other	Other		
Outfall #002	12/16/19	1420		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>												7.0
TRIP BLANK	—	—		<input checked="" type="checkbox"/>															8



* Benzene and CP4Hs must have quantitative less than 2 ug/L
* Use standard SGC

Therm. ID: **A1** Cor: **6.0** Unc: **6.1**
Cooler Desc: **SB**
Packing: **Box** FedEx:
Cust. Seal: Yes No UPS:
Blue Ice: Wet, Dry, None Other:

Cooler <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temp: _____	Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Return To Client <input type="checkbox"/> Archive For _____ Months	(A fee may be assessed if samples are retained longer than 1 month)
--------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other **STAT**

QC Requirements (Specify)

1. Relinquished By Sign/Print Kiley Zaubi	Date 12-17-19	Time 0930	1. Received By Sign/Print Q. Powell	Date 12-17-19	Time 11:02
2. Relinquished By Sign/Print Q. Powell	Date 12-17-19	Time 14:15	2. Received By Sign/Print Ther Hobbs	Date 12-17-19	Time 14:15
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91515-1

Login Number: 91515

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	




ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-91721-1
Client Project/Site: Chevron Edmonds Terminal

For:
ARCADIS U.S. Inc
1100 Olive Way
Suite 800
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:
1/14/2020 3:40:17 PM
Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

elaine.walker@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Job ID: 580-91721-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-91721-1

Receipt

The samples were received on 12/24/2019 11:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270C SIM: The following sample was diluted due to the nature of the sample matrix: Outfall #002 (580-91721-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Definitions/Glossary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91721-1

Date Collected: 12/23/19 11:45

Matrix: Water

Date Received: 12/24/19 11:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/30/19 17:18	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	104		74 - 123					12/30/19 17:18	1
Toluene-d8 (Surr)	104		79 - 122					12/30/19 17:18	1
4-Bromofluorobenzene (Surr)	101		78 - 119					12/30/19 17:18	1
Dibromofluoromethane (Surr)	100		70 - 120					12/30/19 17:18	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 120					12/30/19 17:18	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		12/30/19 09:45	01/13/20 12:04	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/30/19 09:45	01/13/20 12:04	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		12/30/19 09:45	01/13/20 12:04	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		12/30/19 09:45	01/13/20 12:04	1
Chrysene	ND		0.10	0.016	ug/L		12/30/19 09:45	01/13/20 12:04	1
Dibenz(a,h)anthracene	ND		0.10	0.027	ug/L		12/30/19 09:45	01/13/20 12:04	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		12/30/19 09:45	01/13/20 12:04	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	62		53 - 120				12/30/19 09:45	01/13/20 12:04	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/30/19 14:35	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		50 - 150					12/30/19 14:35	1
Trifluorotoluene (Surr)	103		50 - 150					12/30/19 14:35	1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		01/02/20 16:01	01/04/20 20:55	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		01/02/20 16:01	01/04/20 20:55	1
Surrogate									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150				01/02/20 16:01	01/04/20 20:55	1

Client Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-91721-2

Date Collected: 12/23/19 00:01

Matrix: Water

Date Received: 12/24/19 11:25

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/30/19 12:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		74 - 123					12/30/19 12:46	1
Toluene-d8 (Surr)	107		79 - 122					12/30/19 12:46	1
4-Bromofluorobenzene (Surr)	100		78 - 119					12/30/19 12:46	1
Dibromofluoromethane (Surr)	96		70 - 120					12/30/19 12:46	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 120					12/30/19 12:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/30/19 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		50 - 150					12/30/19 13:46	1
Trifluorotoluene (Surr)	111		50 - 150					12/30/19 13:46	1

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-319813/6

Matrix: Water

Analysis Batch: 319813

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.53	ug/L			12/30/19 12:15	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	107		74 - 123					12/30/19 12:15	1
Toluene-d8 (Surr)	104		79 - 122					12/30/19 12:15	1
4-Bromofluorobenzene (Surr)	101		78 - 119					12/30/19 12:15	1
Dibromofluoromethane (Surr)	104		70 - 120					12/30/19 12:15	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 120					12/30/19 12:15	1

Lab Sample ID: LCS 580-319813/3

Matrix: Water

Analysis Batch: 319813

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.3		ug/L		103	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Trifluorotoluene (Surr)	105		74 - 123				
Toluene-d8 (Surr)	107		79 - 122				
4-Bromofluorobenzene (Surr)	105		78 - 119				
Dibromofluoromethane (Surr)	102		70 - 120				
1,2-Dichloroethane-d4 (Surr)	94		70 - 120				

Lab Sample ID: LCSD 580-319813/4

Matrix: Water

Analysis Batch: 319813

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	10.0	11.0		ug/L		110	65 - 135	6	33
Surrogate	%Recovery	LCSD Qualifier	Limits						
Trifluorotoluene (Surr)	105		74 - 123						
Toluene-d8 (Surr)	107		79 - 122						
4-Bromofluorobenzene (Surr)	104		78 - 119						
Dibromofluoromethane (Surr)	100		70 - 120						
1,2-Dichloroethane-d4 (Surr)	94		70 - 120						

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-319819/1-A

Matrix: Water

Analysis Batch: 319977

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319819

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/30/19 09:45	01/03/20 12:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		12/30/19 09:45	01/03/20 12:26	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		12/30/19 09:45	01/03/20 12:26	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/30/19 09:45	01/03/20 12:26	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-319819/1-A

Matrix: Water

Analysis Batch: 319977

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319819

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.10	0.016	ug/L		12/30/19 09:45	01/03/20 12:26	1
Dibenz(a,h)anthracene	ND		0.10	0.026	ug/L		12/30/19 09:45	01/03/20 12:26	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/30/19 09:45	01/03/20 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	69		53 - 120				12/30/19 09:45	01/03/20 12:26	1

Lab Sample ID: LCS 580-319819/2-A

Matrix: Water

Analysis Batch: 319977

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319819

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	2.99		ug/L		75	61 - 129
Benzo[a]pyrene	4.00	2.91		ug/L		73	56 - 130
Benzo[b]fluoranthene	4.00	2.45		ug/L		61	53 - 133
Benzo[k]fluoranthene	4.00	3.04		ug/L		76	51 - 132
Chrysene	4.00	2.91		ug/L		73	47 - 126
Dibenz(a,h)anthracene	4.00	3.12		ug/L		78	60 - 133
Indeno[1,2,3-cd]pyrene	4.00	3.29		ug/L		82	56 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Terphenyl-d14	68		53 - 120				

Lab Sample ID: LCSD 580-319819/3-A

Matrix: Water

Analysis Batch: 319977

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 319819

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.25		ug/L		81	61 - 129	8	31
Benzo[a]pyrene	4.00	3.27		ug/L		82	56 - 130	12	27
Benzo[b]fluoranthene	4.00	2.73		ug/L		68	53 - 133	11	25
Benzo[k]fluoranthene	4.00	3.47		ug/L		87	51 - 132	13	25
Chrysene	4.00	3.25		ug/L		81	47 - 126	11	23
Dibenz(a,h)anthracene	4.00	3.51		ug/L		88	60 - 133	12	25
Indeno[1,2,3-cd]pyrene	4.00	3.67		ug/L		92	56 - 135	11	24
Surrogate	%Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	68		53 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-319806/7

Matrix: Water

Analysis Batch: 319806

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			12/30/19 11:58	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-319806/7

Matrix: Water

Analysis Batch: 319806

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	102		50 - 150		12/30/19 11:58	1
Trifluorotoluene (Surr)	90		50 - 150		12/30/19 11:58	1

Lab Sample ID: LCS 580-319806/8

Matrix: Water

Analysis Batch: 319806

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		50 - 150
Trifluorotoluene (Surr)	95		50 - 150

Lab Sample ID: LCSD 580-319806/9

Matrix: Water

Analysis Batch: 319806

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		50 - 150
Trifluorotoluene (Surr)	112		50 - 150

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-319970/1-B

Matrix: Water

Analysis Batch: 320000

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319970

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/02/20 16:01	01/04/20 15:55	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/02/20 16:01	01/04/20 15:55	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	81		50 - 150	01/02/20 16:01	01/04/20 15:55	1

Lab Sample ID: LCS 580-319970/2-B

Matrix: Water

Analysis Batch: 320000

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319970

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (>C24-C36)	2.00	1.75		mg/L		87	64 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: ARCADIS U.S. Inc
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCS 580-319970/2-B
Matrix: Water
Analysis Batch: 320000

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 319970

Surrogate	LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	95		50 - 150

Lab Sample ID: LCSD 580-319970/3-B
Matrix: Water
Analysis Batch: 320000

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 319970

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
							Limits	RPD	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.64		mg/L		82	50 - 120	6	26	
Motor Oil (>C24-C36)	2.00	1.90		mg/L		95	64 - 120	8	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	100		50 - 150

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Client Sample ID: Outfall #002

Lab Sample ID: 580-91721-1

Date Collected: 12/23/19 11:45

Matrix: Water

Date Received: 12/24/19 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319813	12/30/19 17:18	APR	TAL SEA
Total/NA	Prep	3510C			319819	12/30/19 09:45	NRF	TAL SEA
Total/NA	Analysis	8270C SIM		1	320482	01/13/20 12:04	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	319806	12/30/19 14:35	DCV	TAL SEA
Total/NA	Prep	3510C			319970	01/02/20 16:01	PRO	TAL SEA
Total/NA	Cleanup	3630C			319991	01/03/20 14:34	PRO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	320000	01/04/20 20:55	CJ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-91721-2

Date Collected: 12/23/19 00:01

Matrix: Water

Date Received: 12/24/19 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	319813	12/30/19 12:46	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	319806	12/30/19 13:46	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-20
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: Chevron Edmonds Terminal

Job ID: 580-91721-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-91721-1	Outfall #002	Water	12/23/19 11:45	12/24/19 11:25	
580-91721-2	Trip Blank	Water	12/23/19 00:01	12/24/19 11:25	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # _____ Group # _____ For Lancaster Laboratories use only

Sample # _____

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks																																																												
Facility # WBS				<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Oil <input type="checkbox"/> Air <input type="checkbox"/> Total Number of Containers <input type="checkbox"/> BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH GX 6RO <input checked="" type="checkbox"/> NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/> DRO+ <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> WAVPH <input type="checkbox"/> WAEPH Benzene 624-5M1 PAHs 8270C 55M				SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits										pH 6.58 *Benzene must have a quantitative less than 1ug/L *use standard silica gel cleanup one trip blank opened and spilled																																																												
Site Address 11720 UNOCO RD, Edmonds, WA																																																																														
Chevron PM Kim Jolitz																																																																														
Lead Consultant Arendis Ophélie Enclère																																																																														
Consultant/Office Arcadis / Seattle																																																																														
Consultant Project Mgr. Sam Miles				Composite <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/> Total Number of Containers				Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH GX 6RO <input checked="" type="checkbox"/> NWTPH DX <input checked="" type="checkbox"/> Silica Gel Cleanup <input checked="" type="checkbox"/> DRO+ <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> WAVPH <input type="checkbox"/> WAEPH Benzene 624-5M1 PAHs 8270C 55M										pH 6.58 *Benzene must have a quantitative less than 1ug/L *use standard silica gel cleanup one trip blank opened and spilled																																																												
Consultant Phone # 206-728-4730																																																																														
Sampler Daniel Sly Gilbert																																																																														
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Sample Identification	Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260	Naphth	Oxygenates	NWTPH GX	NWTPH DX	Silica Gel Cleanup	DRO+	Lead	Total	Diss.		Method	WAVPH																					WAEPH																																			
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Relinquished by Q. Roman Date 12/24/19 Time 11:25				Received by Tom Blank Date 12/24/19 Time 11:25																																																																										
Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____				Received by Date _____ Time _____																																																																										
Data Package Options (please circle if required) Type I - Full Type VI (Raw Data)				Temperature Upon Receipt _____ °C				Custody Seals Intact? Yes No																																																																						

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-91721-1

Login Number: 91721

List Number: 1

Creator: Vallelunga, Diana L

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with acct. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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