

April 11, 2025

Mr. Jim Schneider
HF Sinclair Puget Sound Refining LLC
8505 South Texas Road
Anacortes, WA 98221

**RE: Groundwater Monitoring Report: API Well
HF Sinclair Puget Sound Refining LLC**

Dear Mr. Schneider:

ALL4 LLC has completed the 2024 annual groundwater sampling of the API well (W-128). This report documents the annual groundwater monitoring results and should be used to document the condition of the groundwater at the API Separator located within the Effluent Plant (EP) at the HF Sinclair Puget Sound Refining LLC (HFSPSR) facility. The HFSPSR site is located at 8505 South Texas Road in Anacortes, Washington (Figure 1). The location of W-128 is shown on Figure 2.

Historically, one groundwater sample has been collected from monitoring well W-128 and analyzed for gasoline range total petroleum hydrocarbons (TPH), diesel range TPH, and oil range TPH using method NWTPH-HCID. Since 2019, there has been insufficient volume in W-128 to be able to analyze the groundwater sample for method NWTPH-HCID. In 2024, groundwater from W-128 was analyzed for gasoline range TPH using method NWPTH-Gx, diesel and oil range TPH using method NWTPH-Dx, and benzene, toluene, ethylbenzene, and xylenes (BTEX) using method EPA-8260D.

GROUNDWATER SAMPLING

One groundwater sample was collected from monitoring well W-128 on May 13, 2024, and one groundwater sample was collected from monitoring well W-128 on November 12, 2024. The groundwater samples were analyzed at Eurofins Environmental Testing Northwest (Eurofins) laboratory in Tacoma, Washington.

Prior to sampling, the depth to water (DTW) in well W-128 was measured from the top of the PVC well casing with an electronic water level indicator and recorded in the field notebook. The DTW at each sampling event is presented in Table 1. Groundwater in well W-128 has historically been very low due to the shallow well depth of approximately eight feet. Sampling is generally conducted by measuring the depth to water, collecting a grab sample, and attempting to measure water parameters using a YSI. Sampling was attempted on May 13, 2025. Water in well W-128 was low and only a partial sample could be collected before the well went dry. During this event no water quality parameters could be collected before the well went dry. On November 12, the well was resampled. During this sampling event water levels were sufficient to allow for low-flow sampling per EPA guidance EQASOP-GW4 (EPA, 2017).

The samples were stored on ice in a cooler immediately following collection. All sample containers included a sample label which indicated the sample identification, the project name, the sampling date

and time, and the sampler's name. Standard industry protocols regarding sample collection, preservation, chain-of-custody, and shipping were followed.

GROUNDWATER SAMPLING RESULTS

No analytes were detected above laboratory detection limits.

Groundwater analytical data are summarized in Table 1. The original groundwater laboratory analytical data reports are included as an attachment.

Please use this letter to document the condition of the groundwater during the annual 2024 sampling at the API Separator located within the Effluent plant at the HFSPSR facility.

Sincerely,

ALL4 LLC



Ava Gempler
Consulting Scientist

cc: Jim Schneider (HF Sinclair)
Eric Libolt (ALL4)

Attachments:

Attachment 1 – Original Laboratory Data Reports (5/13/2024 and 11/12/2024)

REFERENCES

U.S. Environmental Protection Agency, 2017 (rev. 4), Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW4.



 Facility Fenceline

All data are approximate and should be used for relative location reference only. 2024 aerial photograph (GoogleEarth).

Prepared for:



Prepared by:



Site Location Map

8505 South Texas Road
Anacortes, WA 98221

API Well
Sampling
3/4/2025

Figure 1



API Monitoring Well

All data are approximate and should be used for relative location reference only. 2024 aerial photograph (GoogleEarth).

API Monitoring Well Location Map

Prepared for:



Prepared by:



8505 South Texas Rd
Anacortes, WA 98221

API Well
Sampling
3/4/2025

Figure 2

Table 1
Groundwater Sample Petroleum Analytical Results - API Well
HF Sinclair Puget Sound Refining LLC - Anacortes, WA

Sample ID	Depth to Water	NWTPH-HCID	NWTPH-HCID	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx	EPA-8260	EPA-8260	EPA-8260	EPA-8260
		Gasoline Range	Diesel Range	Oil Range	Gasoline Range	Diesel Range	Oil Range	Benzene	Toluene	Ethylbenzene	Xylenes
Units:	(ft below casing)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
MTCA Method A Cleanup Levels:		1,000/800 ^(a)	500	500	1,000/800 ^(a)	500	500	5	1,000	700	1,000
W-128											
11/20/17	7.30	90	ND(<120)	ND(<240)	NA	NA	NA	NA	NA	NA	NA
11/14/18	7.36	31	100	ND(<110)	NA	NA	NA	NA	NA	NA	NA
12/12/19	7.94	NA	NA	NA	ND(<250)	NA	NA	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)
4/22/20	7.23	NA	NA	NA	ND(<250)	130	ND(<380)	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)
3/30/21	7.95	NA	NA	NA	ND(<250)	ND(<120)	ND(<390)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)
4/20/22	6.95	NA	NA	NA	ND(<50)	ND(<110)	ND(<360)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)
12/13/23	7.60	NA	NA	NA	ND(<100)	130	ND(<360)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)
5/13/24	7.92	NA	NA	NA	ND(<150)	NA	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)
11/12/24	6.04	NA	NA	NA	ND(<150)	ND(<200)	ND(<350)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)

^(a) Cleanup level dependant on BTEX concentrations.

ND indicates analyte was not detected at level above the laboratory reporting limit.

NA indicates analyte was not analyzed for that particular sample.

**ATTACHMENT 1 -
ORIGINAL LABORATORY DATA REPORTS (5/13/2024 AND 11/12/2024)**

ANALYTICAL REPORT

PREPARED FOR

Attn: Eric Libolt
ALL 4, LLC
228 East Champion Street #101
Bellingham, Washington 98225

Generated 5/15/2024 2:12:32 PM

JOB DESCRIPTION

HF Sinclair GW Monitoring-C
HF Sinclair Puget Sound Refining LLC

JOB NUMBER

580-139982-1

Eurofins Seattle

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Authorized for release by
Laura Schick, Project Manager
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Case Narrative

Client: ALL 4, LLC
Project: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1

Job ID: 580-139982-1

Eurofins Seattle

Job Narrative 580-139982-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- 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 may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 5/14/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C.

GC/MS VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Seattle

Definitions/Glossary

Client: ALL 4, LLC

Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1

SDG: HF Sinclair Puget Sound Refining LLC

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Client Sample Results

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Client Sample ID: W-128

Lab Sample ID: 580-139982-1

Date Collected: 05/13/24 11:30

Matrix: Water

Date Received: 05/14/24 09:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/15/24 00:08	1
Toluene	ND		1.0		ug/L			05/15/24 00:08	1
Ethylbenzene	ND		1.0		ug/L			05/15/24 00:08	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/15/24 00:08	1
o-Xylene	ND		1.0		ug/L			05/15/24 00:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		05/15/24 00:08	1
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		05/15/24 00:08	1
4-Bromofluorobenzene (Surr)	101		80 - 120		05/15/24 00:08	1
Dibromofluoromethane (Surr)	103		80 - 120		05/15/24 00:08	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			05/15/24 00:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		05/15/24 00:08	1

Client Sample Results

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Client Sample ID: Trip Blanks

Lab Sample ID: 580-139982-2

Date Collected: 05/13/24 10:30

Matrix: Water

Date Received: 05/14/24 09:40

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/14/24 19:29	1
Toluene	ND		1.0		ug/L			05/14/24 19:29	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 19:29	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/14/24 19:29	1
o-Xylene	ND		1.0		ug/L			05/14/24 19:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		05/14/24 19:29	1
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		05/14/24 19:29	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/14/24 19:29	1
Dibromofluoromethane (Surr)	103		80 - 120		05/14/24 19:29	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			05/14/24 19:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123		05/14/24 19:29	1

QC Sample Results

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-459409/11

Matrix: Water

Analysis Batch: 459409

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		ug/L			05/14/24 19:06	1
Toluene	ND		1.0		ug/L			05/14/24 19:06	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 19:06	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/14/24 19:06	1
o-Xylene	ND		1.0		ug/L			05/14/24 19:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		05/14/24 19:06	1
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		05/14/24 19:06	1
4-Bromofluorobenzene (Surr)	103		80 - 120		05/14/24 19:06	1
Dibromofluoromethane (Surr)	101		80 - 120		05/14/24 19:06	1

Lab Sample ID: LCS 580-459409/6

Matrix: Water

Analysis Batch: 459409

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	4.90		ug/L		98	80 - 122
Toluene	5.00	5.24		ug/L		105	80 - 120
Ethylbenzene	5.00	5.40		ug/L		108	80 - 120
m-Xylene & p-Xylene	5.00	5.51		ug/L		110	80 - 120
o-Xylene	5.00	5.47		ug/L		109	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	98		80 - 120
1,2-Dichloroethane-d4 (Surr)	93		80 - 120
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120

Lab Sample ID: LCSD 580-459409/7

Matrix: Water

Analysis Batch: 459409

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	5.00	4.87		ug/L		97	80 - 122	1	14
Toluene	5.00	5.23		ug/L		105	80 - 120	0	13
Ethylbenzene	5.00	5.40		ug/L		108	80 - 120	0	14
m-Xylene & p-Xylene	5.00	5.36		ug/L		107	80 - 120	3	14
o-Xylene	5.00	5.47		ug/L		109	80 - 120	0	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	98		80 - 120
1,2-Dichloroethane-d4 (Surr)	92		80 - 120
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	103		80 - 120

QC Sample Results

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Lab Sample ID: MB 580-459410/11

Matrix: Water

Analysis Batch: 459410

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			05/14/24 19:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		77 - 123					05/14/24 19:06	1

Lab Sample ID: LCS 580-459410/8

Matrix: Water

Analysis Batch: 459410

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	0.500	0.589		mg/L		118	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		77 - 123				

Lab Sample ID: LCSD 580-459410/9

Matrix: Water

Analysis Batch: 459410

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	0.500	0.600		mg/L		120	55 - 148	2	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		77 - 123						

Lab Chronicle

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Client Sample ID: W-128
Date Collected: 05/13/24 11:30
Date Received: 05/14/24 09:40

Lab Sample ID: 580-139982-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459409	AA	EET SEA	05/15/24 00:08
Total/NA	Analysis	NWTPH-Gx		1	459410	AA	EET SEA	05/15/24 00:08

Client Sample ID: Trip Blanks
Date Collected: 05/13/24 10:30
Date Received: 05/14/24 09:40

Lab Sample ID: 580-139982-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459409	AA	EET SEA	05/14/24 19:29
Total/NA	Analysis	NWTPH-Gx		1	459410	AA	EET SEA	05/14/24 19:29

Laboratory References:
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-24

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: ALL 4, LLC
Project/Site: HF Sinclair GW Monitoring-C

Job ID: 580-139982-1
SDG: HF Sinclair Puget Sound Refining LLC

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-139982-1	W-128	Water	05/13/24 11:30	05/14/24 09:40
580-139982-2	Trip Blanks	Water	05/13/24 10:30	05/14/24 09:40

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Environment Testing
TestAmerica

[illegible]

ANALYTICAL REPORT

PREPARED FOR

Attn: Eric Libolt
ALL4, Inc.
228 East Champion Street #101
Bellingham, Washington 98225

Generated 11/20/2024 8:17:24 AM

JOB DESCRIPTION

HF Sinclair GW Monitoring - C

JOB NUMBER

580-145791-1

Eurofins Seattle

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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Case Narrative

Client: ALL4, Inc.
Project: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Job ID: 580-145791-1

Eurofins Seattle

Job Narrative 580-145791-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 11/13/2024 7:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C.

Gasoline Range Organics

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Hydrocarbons

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Seattle

Definitions/Glossary

Client: ALL4, Inc.

Job ID: 580-145791-1

Project/Site: HF Sinclair GW Monitoring - C

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Client Sample Results

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Client Sample ID: W-128

Lab Sample ID: 580-145791-1

Date Collected: 11/12/24 11:40

Matrix: Water

Date Received: 11/13/24 07:45

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/15/24 18:03	1
Toluene	ND		1.0		ug/L			11/15/24 18:03	1
Ethylbenzene	ND		1.0		ug/L			11/15/24 18:03	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/15/24 18:03	1
o-Xylene	ND		1.0		ug/L			11/15/24 18:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		11/15/24 18:03	1
4-Bromofluorobenzene (Surr)	102		80 - 120		11/15/24 18:03	1
Dibromofluoromethane (Surr)	99		80 - 120		11/15/24 18:03	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		11/15/24 18:03	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			11/15/24 18:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123		11/15/24 18:03	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		0.20		mg/L		11/15/24 08:44	11/19/24 01:44	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		11/15/24 08:44	11/19/24 01:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	95		50 - 150	11/15/24 08:44	11/19/24 01:44	1

Client Sample Results

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-145791-2

Date Collected: 11/12/24 11:30

Matrix: Water

Date Received: 11/13/24 07:45

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/15/24 16:30	1
Toluene	ND		1.0		ug/L			11/15/24 16:30	1
Ethylbenzene	ND		1.0		ug/L			11/15/24 16:30	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/15/24 16:30	1
o-Xylene	ND		1.0		ug/L			11/15/24 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		11/15/24 16:30	1
4-Bromofluorobenzene (Surr)	101		80 - 120		11/15/24 16:30	1
Dibromofluoromethane (Surr)	98		80 - 120		11/15/24 16:30	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		11/15/24 16:30	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			11/15/24 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		11/15/24 16:30	1

QC Sample Results

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-478031/11

Matrix: Water

Analysis Batch: 478031

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		ug/L			11/15/24 13:47	1
Toluene	ND		1.0		ug/L			11/15/24 13:47	1
Ethylbenzene	ND		1.0		ug/L			11/15/24 13:47	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/15/24 13:47	1
o-Xylene	ND		1.0		ug/L			11/15/24 13:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120		11/15/24 13:47	1
4-Bromofluorobenzene (Surr)	102		80 - 120		11/15/24 13:47	1
Dibromofluoromethane (Surr)	98		80 - 120		11/15/24 13:47	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		11/15/24 13:47	1

Lab Sample ID: LCS 580-478031/6

Matrix: Water

Analysis Batch: 478031

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	4.76		ug/L		95	80 - 122
Toluene	5.00	4.70		ug/L		94	80 - 120
Ethylbenzene	5.00	4.78		ug/L		96	80 - 120
m-Xylene & p-Xylene	5.00	5.00		ug/L		100	80 - 120
o-Xylene	5.00	4.87		ug/L		97	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	98		80 - 120
1,2-Dichloroethane-d4 (Surr)	101		80 - 120

Lab Sample ID: LCSD 580-478031/7

Matrix: Water

Analysis Batch: 478031

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	5.00	5.08		ug/L		102	80 - 122	7	14
Toluene	5.00	4.92		ug/L		98	80 - 120	5	13
Ethylbenzene	5.00	5.05		ug/L		101	80 - 120	6	14
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 120	6	14
o-Xylene	5.00	5.19		ug/L		104	80 - 120	6	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
1,2-Dichloroethane-d4 (Surr)	101		80 - 120

Eurofins Seattle

QC Sample Results

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Lab Sample ID: MB 580-478027/11
Matrix: Water
Analysis Batch: 478027

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.15		mg/L			11/15/24 13:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123					11/15/24 13:47	1

Lab Sample ID: LCS 580-478027/8
Matrix: Water
Analysis Batch: 478027

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline	0.999	1.06		mg/L		106	55 - 148		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		77 - 123						

Lab Sample ID: LCSD 580-478027/9
Matrix: Water
Analysis Batch: 478027

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	0.999	1.07		mg/L		107	55 - 148	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		77 - 123						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-478021/1-A
Matrix: Water
Analysis Batch: 478156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 478021

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.20		mg/L		11/15/24 08:44	11/18/24 17:23	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		11/15/24 08:44	11/18/24 17:23	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	126		50 - 150				11/15/24 08:44	11/18/24 17:23	1

Lab Sample ID: LCS 580-478021/2-A
Matrix: Water
Analysis Batch: 478156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 478021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)	4.00	3.54		mg/L		89	50 - 120		
Motor Oil (>C24-C36)	4.00	3.86		mg/L		97	64 - 120		

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QC Sample Results

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-478021/2-A

Matrix: Water

Analysis Batch: 478156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 478021

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	100		50 - 150

Lab Sample ID: LCSD 580-478021/3-A

Matrix: Water

Analysis Batch: 478156

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 478021

	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>						<i>%Rec</i>	<i>RPD</i>	
<i>Analyte</i>	<i>Added</i>	<i>Result</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)	4.00	3.69		mg/L		92	50 - 120	4	26		
Motor Oil (>C24-C36)	4.00	4.07		mg/L		102	64 - 120	5	24		

	<i>LCSD</i>	<i>LCSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	102		50 - 150

Lab Chronicle

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Client Sample ID: W-128
Date Collected: 11/12/24 11:40
Date Received: 11/13/24 07:45

Lab Sample ID: 580-145791-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	478031	JBT	EET SEA	11/15/24 18:03
Total/NA	Analysis	NWTPH-Gx		1	478027	AA	EET SEA	11/15/24 18:03
Total/NA	Prep	3510C			478021	JW	EET SEA	11/15/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	478156	SW	EET SEA	11/19/24 01:44

Client Sample ID: Trip Blank
Date Collected: 11/12/24 11:30
Date Received: 11/13/24 07:45

Lab Sample ID: 580-145791-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	478031	JBT	EET SEA	11/15/24 16:30
Total/NA	Analysis	NWTPH-Gx		1	478027	AA	EET SEA	11/15/24 16:30

Laboratory References:
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788-24	07-13-25

- 1
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Sample Summary

Client: ALL4, Inc.
Project/Site: HF Sinclair GW Monitoring - C

Job ID: 580-145791-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-145791-1	W-128	Water	11/12/24 11:40	11/13/24 07:45
580-145791-2	Trip Blank	Water	11/12/24 11:30	11/13/24 07:45

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Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310

Chain of Custody Record



Client Information		Sampler: Ava Gempier, Vanessa Spring		Lab Pk: Schick, Laura		Carrier/Tracking Note:	
Client Contact: Eric Libolt		Phone: 360-752-9571		Email: Laura.Schick@FT.EurofinsUS.com		FedEx	
Company: ALL4 LLC		Date Date Requested:		Analysis Requested			
Address: 228 East Champion Street #101		TAT Requested (days):					
City: Bellingham		State: WA		Standard			
Zip: 98225		PO #:		Contact FinOps at FinOps@all4inc.com			
Phone: 360-752-9571		WO #:					
Email: elibolt@all4inc.com		Project #:					
Project Name: HF Sinclair GW Monitoring-C		SSOW #:					
Site: HF Sinclair Puget Sound Refining LLC		Matrix:					
		Field Filtered Sample (Yes or No)					
		Perform MS/MSD (Yes or No)					
		NWTPH-Gx					
		BTEx (8260D)					
		NWTPH-Dx					
		Total Number of containers					
		Special Instructions/Note:					
		Jim Schneider and Ava Gempier's E-Mails are: jim.schneider@hf-sinclair.com , agempier@all4inc.com					
		Please provide results to both HF Sinclair PSR and ALL4					
		Trip Blank filled by lab, labeled per lab instruction					
		Trip Blanks					
		Sample Identification					
		Sample Date					
		Sample Time					
		Sample Type (C=comp, G=grab)					
		Preservation Code:					
		Matrix					
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