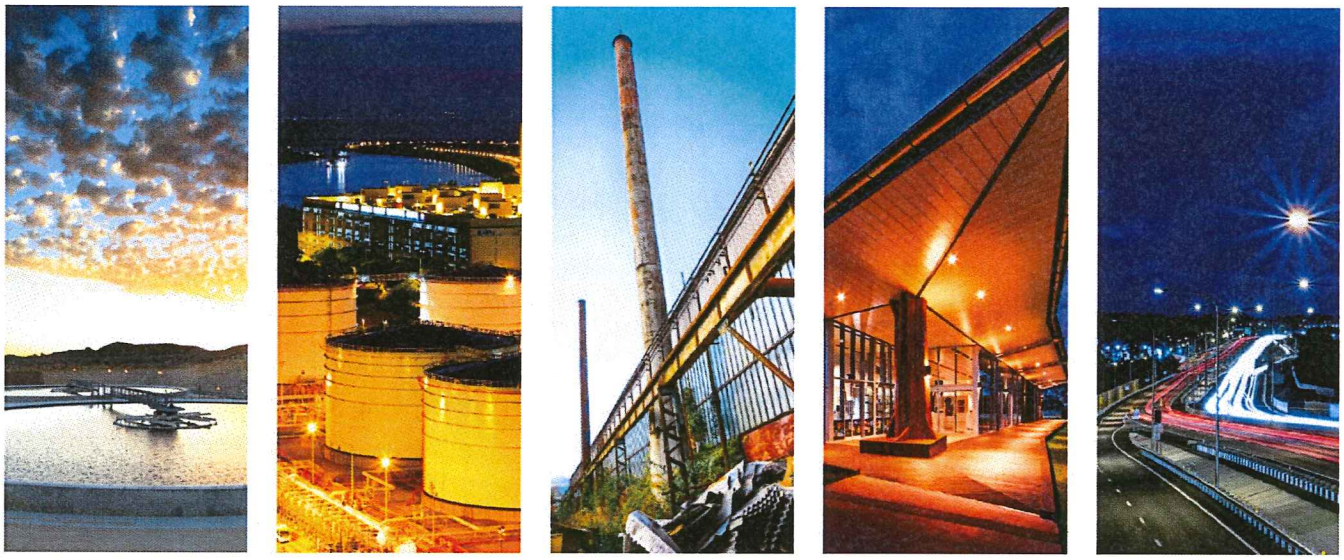
Texaco Station / Maple Valley
FS 2317 7881
NW 2995
Maple Valley



2016 Annual Groundwater Monitoring Report

Jackson's Food Store No. 5017
21641 Maple Valley Highway
Maple Valley, Washington

Jackson's Food Stores

GHD | 20818 44th Ave. West, Suite 190 Lynnwood Washington 98036
062308 | Report No 2 | February 22 2017

Transmittal

Date: February 22, 2017 Reference No.: 062308

To: Sonia Fernandez
Department of Ecology, NW Region
3190 160th Ave SE
Bellevue, WA 98008-5452

Subject: 2016 Annual Groundwater Monitoring Report

No. of Copies	Description/Title	Drawing No./ Document Ref.	Issue
1	2016 Annual Groundwater Monitoring Report		

Issued for: ☒ Your information ☐ As requested ☐ Construction ☐ Quotation
☐ Your approval/comments ☐ Returned to you ☐ For re-submission

Sent by: ☐ Overnight courier ☐ Same day courier ☐ Mailed under separate cover ☒ Mail enclosed

Remarks:

Copy to:

Completed by: Brian Peters [Please Print] Signed:

Filing: Correspondence File

GHD Services Inc.
20818 44th Avenue West Suite 190 Lynnwood Washington 98036 USA
T 425 563 6500 **F** 425 563 6599 **W** www.ghd.com

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Appendices

1. Introduction

GHD Services, Inc. (GHD) prepared this report on behalf of Jackson's Food Stores. This annual report includes all groundwater monitoring data collected in 2016.

1.1 Site Information

Site Address	21641 Maple Valley Highway, Maple Valley, WA
Site Use	Jackson's Food Store No. 5017
GHD Project Manager	Brian Peters
Lead Agency and Contact	Washington State Department of Ecology, Sonia Fernandez
Agency Case No.	23177881
VCP No.	NW2995

2. Site Activities and Findings

2.1 Current Activities

GHD gauged and sampled wells according to the established monitoring program during 2016.

GHD prepared a vicinity map (Figure 1) and groundwater contour and chemical concentration maps (Figure 2 through 5). GHD prepared Table 1 summarizing groundwater monitoring data and laboratory analytical results. Field forms and the laboratory analytical reports are included as Appendices A and B, respectively.

2.2 Findings

Quarter/Date	1st /March 25, 2016
Groundwater Flow Direction	Estimated to the west
Hydraulic Gradient	0.01 foot/foot
Depth to Water	11.94 to 15.58 feet below top of well casing
Quarter/Date	2nd /July 1, 2016
Groundwater Flow Direction	Estimated to the west
Hydraulic Gradient	0.02 foot/foot
Depth to Water	12.34 to 15.98 feet below top of well casing

Quarter/Date	3rd/September 29, 2016
Groundwater Flow Direction	Estimated to the west
Hydraulic Gradient	0.02 foot/foot
Depth to Water	12.78 to 16.25 feet below top of well casing
Quarter/Date	4th/December 6, 2016
Groundwater Flow Direction	Estimated to the west
Hydraulic Gradient	0.02 foot/foot
Depth to Water	12.05 to 15.73 feet below top of well casing

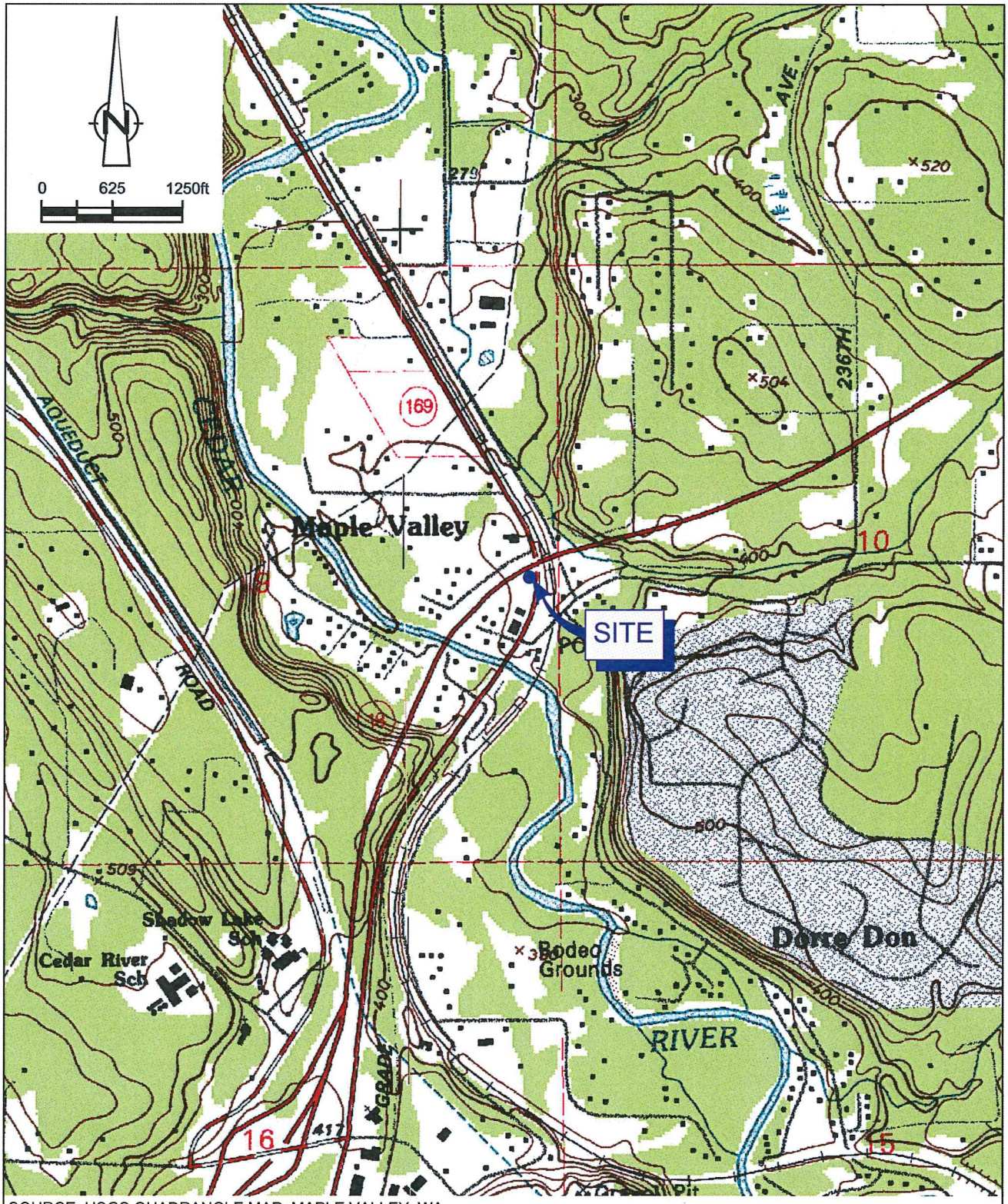
All of Which is Respectfully Submitted,

GHD

Christina McClelland, LG

Brian Peters, LG

Figures



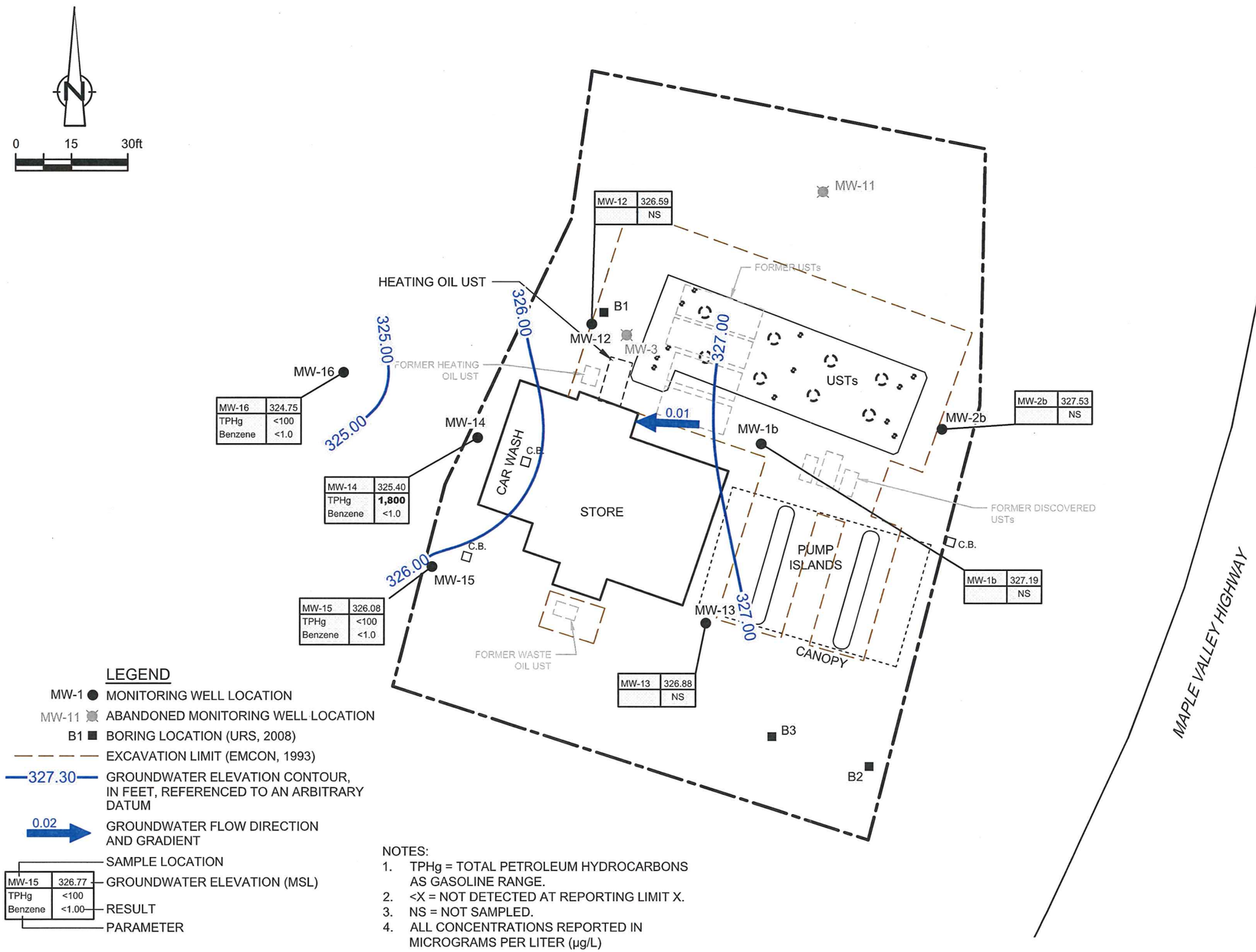
SOURCE: USGS QUADRANGLE MAP: MAPLE VALLEY, WA.

figure 1

VICINITY MAP
JACKSON'S FOOD STORE NO. 5017
21641 MAPLE VALLEY HIGHWAY
Maple Valley, Washington

GHD

062308-2016(002)GN-SO001 MAY 9, 2016



NOTES:
1. TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE.
2. <X = NOT DETECTED AT REPORTING LIMIT X.
3. NS = NOT SAMPLED.
4. ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

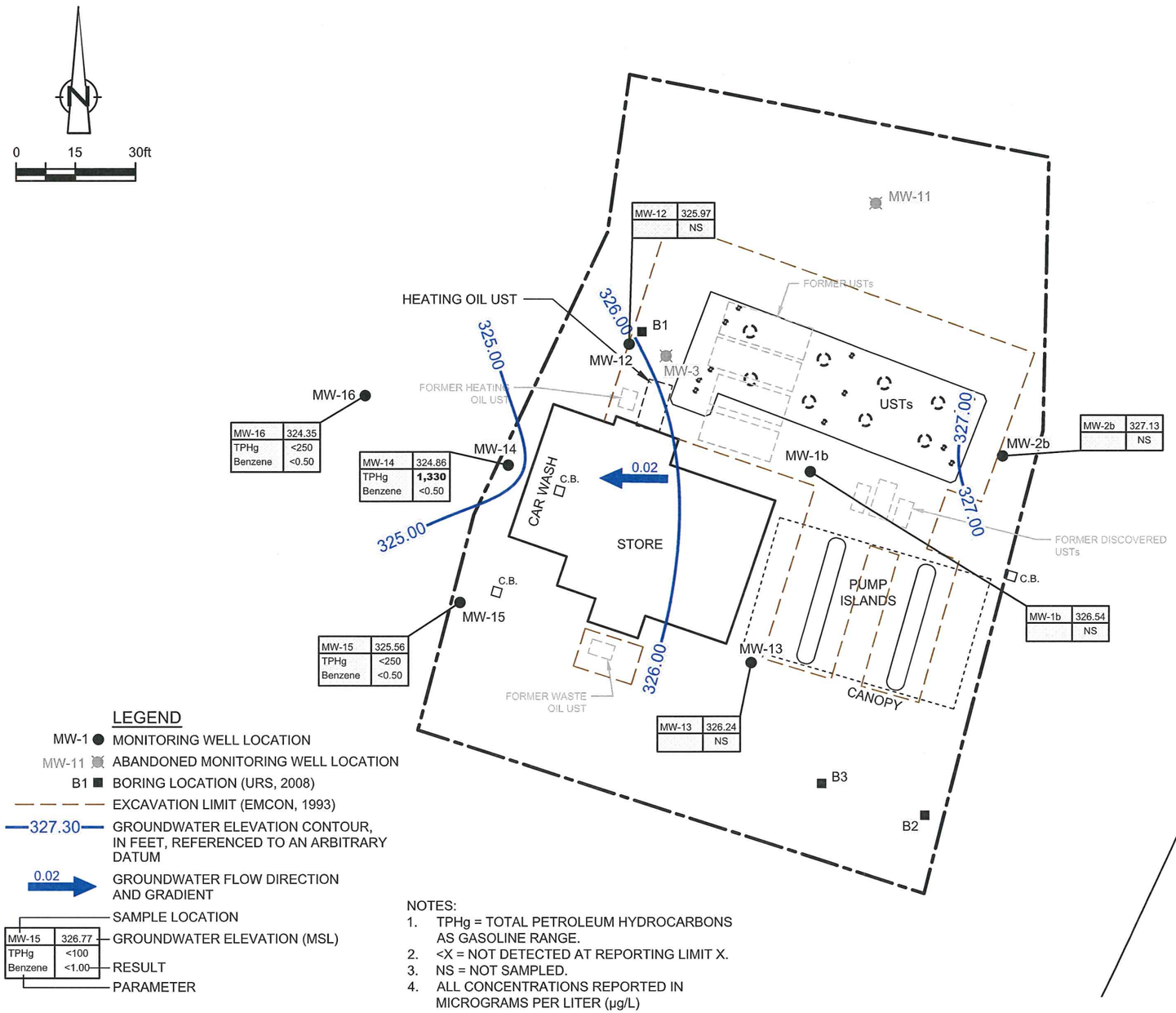
figure 2

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP - MARCH 25, 2016
JACKSON'S FOOD STORE NO. 5017
21641 MAPLE VALLEY HIGHWAY
Maple Valley, Washington

SOURCE:
DELTA CONSULTANTS, FIGURE 2, GROUNDWATER ELEVATION CONTOUR MAP, DATED 5/2/07;
STATEWIDE LAND SURVEYING INC. DATED 5/19/14.

NOTE:
WASHINGTON STATE PLANE COORDINATE SYSTEM NAD 83/CORS 96,
NORTH ZONE 4601, IN U.S. SURVEY FEET.

062308-2016(002)GN-SO002 MAY 9, 2016



LEGEND

- MW-1 ● MONITORING WELL LOCATION
- MW-11 ⊗ ABANDONED MONITORING WELL LOCATION
- B1 ■ BORING LOCATION (URS, 2008)
- EXCAVATION LIMIT (EMCON, 1993)
- 327.30 GROUNDWATER ELEVATION CONTOUR, IN FEET, REFERENCED TO AN ARBITRARY DATUM
- 0.02 GROUNDWATER FLOW DIRECTION AND GRADIENT
- SAMPLE LOCATION
- MW-15 | 326.77 — GROUNDWATER ELEVATION (MSL)
- TPHg | <100
- Benzene | <1.00 — RESULT
- PARAMETER

NOTES:

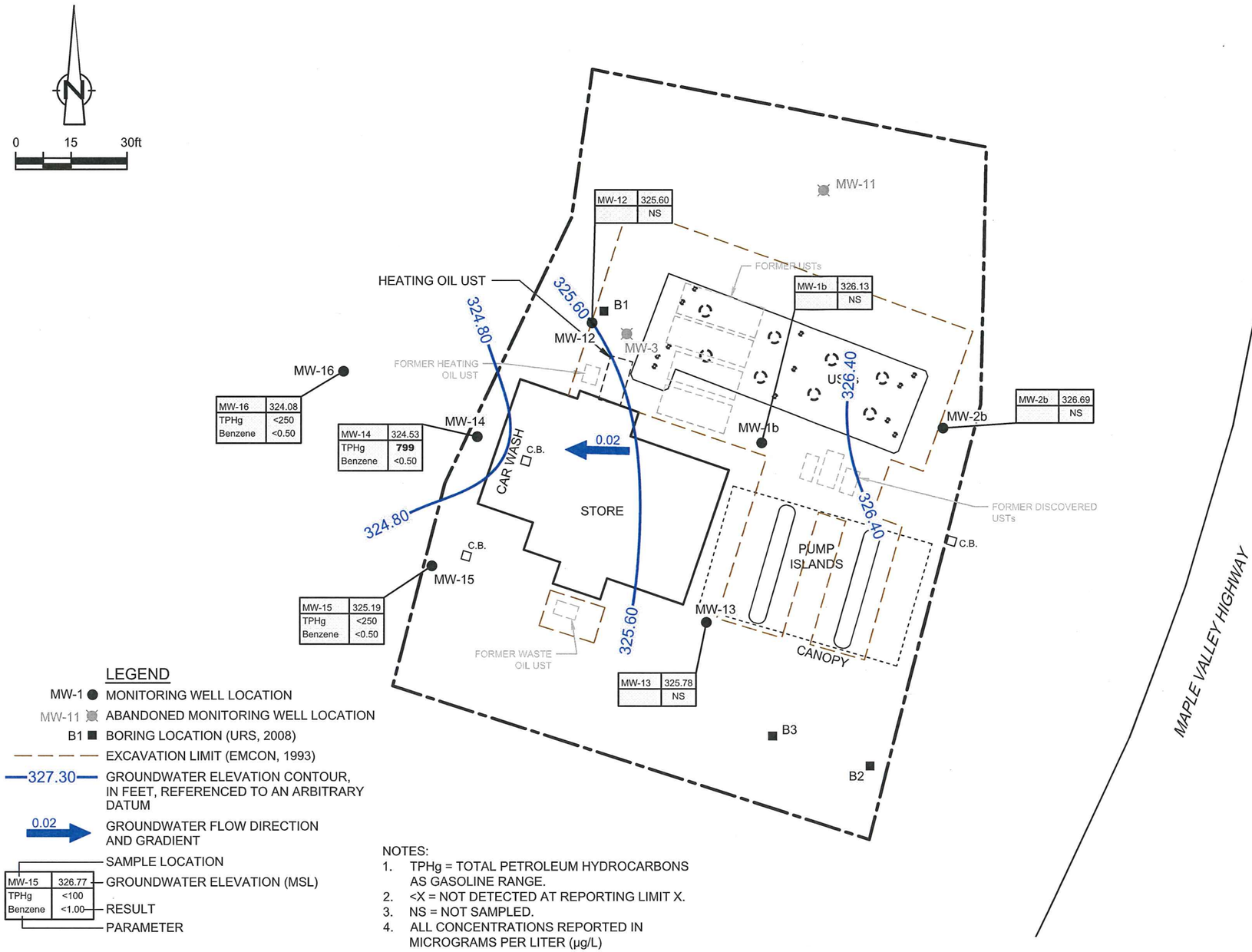
1. TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE.
2. <X = NOT DETECTED AT REPORTING LIMIT X.
3. NS = NOT SAMPLED.
4. ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

figure 3

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP - JULY 11, 2016
JACKSON'S FOOD STORE NO. 5017
21641 MAPLE VALLEY HIGHWAY
Maple Valley, Washington

SOURCE:
DELTA CONSULTANTS, FIGURE 2, GROUNDWATER ELEVATION CONTOUR MAP, DATED 5/2/07;
STATEWIDE LAND SURVEYING INC. DATED 5/19/14.

NOTE:
WASHINGTON STATE PLANE COORDINATE SYSTEM NAD 83/CORS 96,
NORTH ZONE 4601, IN U.S. SURVEY FEET.



LEGEND

- MW-1 ● MONITORING WELL LOCATION
- MW-11 ✳ ABANDONED MONITORING WELL LOCATION
- B1 ■ BORING LOCATION (URS, 2008)
- EXCAVATION LIMIT (EMCON, 1993)
- 327.30 GROUNDWATER ELEVATION CONTOUR, IN FEET, REFERENCED TO AN ARBITRARY DATUM
- 0.02 GROUNDWATER FLOW DIRECTION AND GRADIENT
- SAMPLE LOCATION
- MW-15 | 326.77 — GROUNDWATER ELEVATION (MSL)
- TPHg | <100
- Benzene | <1.00 — RESULT
- PARAMETER

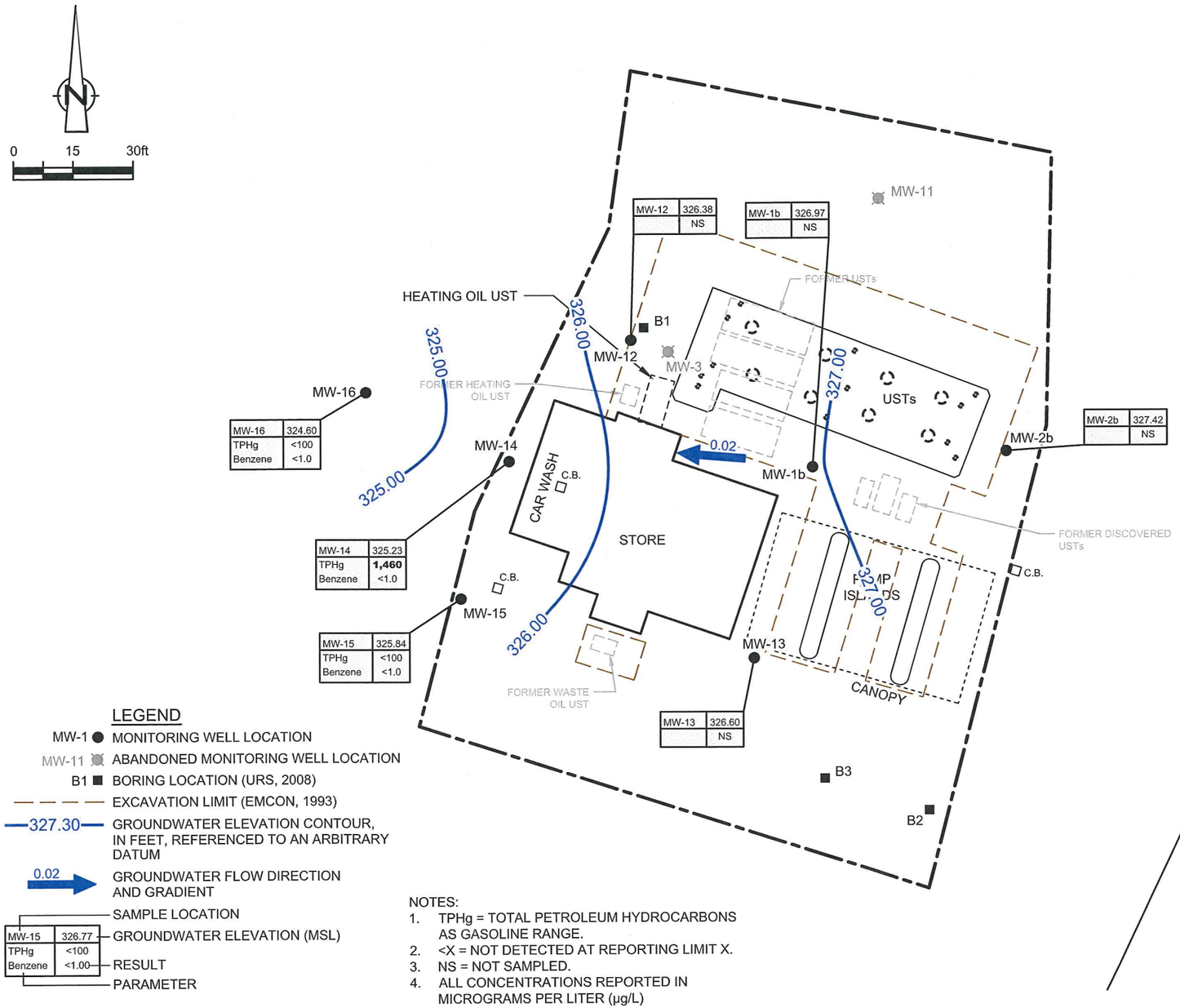
NOTES:
1. TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE.
2. <X = NOT DETECTED AT REPORTING LIMIT X.
3. NS = NOT SAMPLED.
4. ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

figure 4

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP - SEPTEMBER 29, 2016
JACKSON'S FOOD STORE NO. 5017
21641 MAPLE VALLEY HIGHWAY
Maple Valley, Washington

SOURCE:
DELTA CONSULTANTS, FIGURE 2, GROUNDWATER ELEVATION CONTOUR MAP, DATED 5/2/07;
STATEWIDE LAND SURVEYING INC. DATED 5/19/14.

NOTE:
WASHINGTON STATE PLANE COORDINATE SYSTEM NAD 83/CORS 96,
NORTH ZONE 4601, IN U.S. SURVEY FEET.



LEGEND

- MW-1 ● MONITORING WELL LOCATION
- MW-11 ✳ ABANDONED MONITORING WELL LOCATION
- B1 ■ BORING LOCATION (URS, 2008)
- EXCAVATION LIMIT (EMCON, 1993)
- 327.30 GROUNDWATER ELEVATION CONTOUR, IN FEET, REFERENCED TO AN ARBITRARY DATUM
- 0.02 GROUNDWATER FLOW DIRECTION AND GRADIENT
- SAMPLE LOCATION
- MW-15 | 326.77 — GROUNDWATER ELEVATION (MSL)
- TPHg | <100
- Benzene | <1.00 — RESULT
- PARAMETER

NOTES:
1. TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE.
2. <X = NOT DETECTED AT REPORTING LIMIT X.
3. NS = NOT SAMPLED.
4. ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)

figure 5

GROUNDWATER CONTOUR AND CHEMICAL CONCENTRATION MAP - DECEMBER 6, 2016
JACKSON'S FOOD STORE NO. 5017
21641 MAPLE VALLEY HIGHWAY
Maple Valley, Washington

SOURCE:
DELTA CONSULTANTS, FIGURE 2, GROUNDWATER ELEVATION CONTOUR MAP, DATED 5/2/07;
STATEWIDE LAND SURVEYING INC. DATED 5/19/14.

NOTE:
WASHINGTON STATE PLANE COORDINATE SYSTEM NAD 83/CORS 96,
NORTH ZONE 4601, IN U.S. SURVEY FEET.

Tables

Table 1

Summary of Groundwater Monitoring Data
Jackson's Food Store No. 5017
21641 Maple Valley Highway
Maple Valley, Washington

							HYDROCARBONS		VOCs															METALS	PAHs	PCBs
Sample ID	Date	TOC	DTW	SPH	GWE	TPHg	TPHd	TPHo	B	T	E	X	EDB	EDC	MTBE	TBA	DIPE	ETBE	TAME	PCE	Ethanol	Total Lead	Naphthalene	Total
	Model Toxics Control Act Method A Cleanup Levels			Feet		800/1000 ug/L	500 ug/L	500 ug/L	5 ug/L	1000 ug/L	700 ug/L	1000 ug/L	0.01 ug/L	5 ug/L	20 ug/L	N/A	N/A	N/A	N/A	5 ug/L	N/A	15 ug/L	160 ug/L	0.1 ug/L
MW-1b	06/18/14	340.54	12.53	---	328.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	09/04/14	340.54	12.75	---	327.79	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	12/22/14	340.54	12.51	---	328.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	06/19/15	340.54	12.78	---	327.76	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	08/26/15	340.54	13.20	---	327.34	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	11/12/15	340.54	13.04	---	327.50	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	03/25/16	340.54	13.35	---	327.19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	07/11/16	340.54	14.00	---	326.54	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	09/29/16	340.54	14.41	---	326.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-1b	12/06/16	340.54	13.57	---	326.97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	06/18/14	339.47	11.45	---	328.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	09/04/14	339.47	11.14	---	328.33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	12/22/14	339.47	11.45	---	328.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	06/19/15	339.47	11.59	---	327.88	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	08/26/15	339.47	12.10	---	327.37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	11/12/15	339.47	11.99	---	327.48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	03/25/16	339.47	11.94	---	327.53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	07/11/16	339.47	12.34	---	327.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	09/29/16	339.47	12.78	---	326.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2b	12/06/16	339.47	12.05	---	327.42	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	06/18/14	340.34	13.74	---	326.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	09/04/14	340.34	13.03	---	327.31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	12/22/14	340.34	12.80	---	327.54	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	06/19/15	340.34	13.18	---	327.16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	08/26/15	340.34	13.51	---	326.83	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	11/12/15	340.34	13.42	---	326.92	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	03/25/16	340.34	13.75	---	326.59	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	07/11/16	340.34	14.37	---	325.97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	09/29/16	340.34	14.74	---	325.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-12	12/06/16	340.34	13.96	---	326.38	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	06/18/14	340.16	12.58	---	327.58	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	09/04/14	340.16	12.81	---	327.35	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	12/22/14	340.16	12.51	---	327.65	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	06/19/15	340.16	12.46	---	327.70	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	08/26/15	340.16	13.31	---	326.85	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	11/12/15	340.16	13.15	---	327.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	03/25/16	340.16	13.28	---	326.88	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	07/11/16	340.16	13.92	---	326.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	09/29/16	340.16	14.38	---	325.78	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-13	12/06/16	340.16	13.56	---	326.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-14	06/12/14	340.34	13.74	---	326.60	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-14	06/18/14	340.34	13.74	---	326.60	**3,520**	**1,040 / 1,210 a**	<93.9 / <93.9 a	<1.00	0.255 J	<1.00	0.740 J	**0.255 J**	0.385 J	<1.00	---	---	---	---	1.61 b	---	4.96	0.895 J	---
MW-14	09/04/14	340.34	13.93	---	326.41	**3,160**	**831 / 972 a**	<94.3 / <98.0 a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	---	---	---	---	1.65	---	5.13	<5.00	---
MW-14	12/22/14	340.34	13.71	---	326.63	**2,250**	**979 / 1,230 a**	<93.9 / <93.9 a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	<10.0	<2.00	<1.00	<1.00	2.09	---	5.85	<5.00	---
MW-14	06/19/15	340.34	13.98	---	326.36	**2,540**	<400	<400	<1.0	<1.0	<1.0	<3.0	<0.0096	---	---	---	---	---	---	---	---	---	---	---
MW-14	08/26/15	340.34	14.42	---	325.92	**2,390**	<400	<400	---	---	---	---	4	---	---	---	---	---	---	---	---	---	---	---
MW-14	11/12/15	340.34	13.81	---	326.53	**1,110**	<400	<400	---	---	---	---	<0.0017	---	---	---	---	---	---	---	---	---	---	---

Table 1

Summary of Groundwater Monitoring Data
Jackson's Food Store No. 5017
21641 Maple Valley Highway
Maple Valley, Washington

Sample ID	Date	TOC	DTW	SPH	GWE	HYDROCARBONS			VOCs													METALS	PAHs	PCBs
	Model Toxics Control Act Method A Cleanup Levels			Feet		TPHg 800/1000 ug/L	TPHd 500 ug/L	TPHo 500 ug/L	B 5 ug/L	T 1000 ug/L	E 700 ug/L	X 1000 ug/L	EDB 0.01 ug/L	EDC 5 ug/L	MTBE 20 ug/L	TBA N/A	DIPE N/A	ETBE N/A	TAME N/A	PCE 5 ug/L	Ethanol N/A	Total Lead 15 ug/L	Naphthalene 160 ug/L	Total 0.1 ug/L
MW-14	03/25/16	340.34	14.94	---	325.40	**1,800**	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-14	07/11/16	340.34	15.48	---	324.86	**1,330**	450	<270	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-14	09/29/16	340.34	15.81	---	324.53	799	490	280	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-14	12/06/16	340.34	15.11	---	325.23	**1,460**	<220	<420	<1.0	0.12 J	0.14 J	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	06/12/14	340.16	12.75	---	327.41	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	06/18/14	340.16	13.19	---	326.97	<100	27.0 J / <93.9 a	a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	---	---	---	---	2.02 b	---	<2	<5.00	---
MW-15	09/04/14	340.16	13.39	---	326.77	<100	<94.3 / <98.0 a	<94.3 / <98.0 a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	---	---	---	---	2.51	---	<2	<5.00	---
MW-15	12/22/14	340.16	13.19	---	326.97	<100	<93.9 / <93.9 a	<93.9 / <93.9 a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	<10.0	<2.00	<1.00	<1.00	2.34	---	<2	<5.00	---
MW-15	06/19/15	340.16	13.50	---	326.66	<2,000	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	08/26/15	340.16	13.64	---	326.52	<100	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	11/12/15	340.16	13.20	---	326.96	<100	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	03/25/16	340.16	14.08	---	326.08	<100	<410	<410	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	07/11/16	340.16	14.60	---	325.56	<250	<180	<270	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	09/29/16	340.16	14.97	---	325.19	<250	<190	<280	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-15	12/06/16	340.16	14.32	---	325.84	<100	<220	<420	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	12/12/14	340.33	14.19	---	326.14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	12/22/14	340.33	14.24	---	326.09	<100	<93.9 / <93.9 a	<93.9 / <93.9 a	<1.00	<1.00	<1.00	<2.00	<0.210	<1.00	<1.00	<10.0	<2.00	<1.00	<1.00	2.28	---	<2	<5.00	---
MW-16	06/19/15	340.33	14.43	---	325.90	<100	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	08/26/15	340.33	14.80	---	325.53	<100	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	11/12/15	340.33	14.35	---	325.98	<100	<400	<400	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	03/25/16	340.33	15.58	---	324.75	<100	<380	<380	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	07/11/16	340.33	15.98	---	324.35	<250	290	<280	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	09/29/16	340.33	16.25	---	324.08	<250	<180	<280	<0.50	<0.50	<0.50	<1.5	---	---	---	---	---	---	---	---	---	---	---	---
MW-16	12/06/16	340.33	15.73	---	324.60	<100	<220	<420	<1.0	<1.0	<1.0	<3.0	---	---	---	---	---	---	---	---	---	---	---	---

Notes:
SPH = Separate phase hydrocarbons (thickness measured in feet)
DTW = Depth to Water in feet
GWE = Groundwater Elevation in feet relative to mean sea level
TOC = Top of Casing in feet relative to mean sea level
All results in micrograms per liter (µg/L) unless otherwise indicated
TPHg = Total petroleum hydrocarbons as gasoline analyzed by NWTPH-Gx unless otherwise noted.
TPHd = Total petroleum hydrocarbons as diesel, analyzed by NWTPH-Dx unless otherwise noted
TPHo = Total petroleum hydrocarbons as oil, analyzed by NWTPH-Dx unless otherwise noted
BTEX = Benzene, toluene, ethylbenzene, and xylenes analyzed by EPA Method 8260B unless otherwise noted.
EDB = 1,2-Dibromoethane analyzed by EPA Method 8011
EDC = 1,2-Dichloroethane analyzed by EPA Method 8260B
MTBE = Methyl tertiary-butyl ether analyzed by EPA Method 8260B
VOCs = Volatile organic compounds
PCE = Tetrachloroethene by EPA Method 8260B
PAHs = Polycyclic aromatic hydrocarbons analyzed by EPA Method 8270C-SIM
<x = Not detected at laboratory reporting limit x
--- = Not analyzed
Concentrations in bold type indicate the analyte was detected above MTCA Method A cleanup levels

* indicates the groundwater samples were additionally analyzed for full list of VOCs by EPA Method 8260B; some analytes concentrations were detected above the laboratory reporting limits but no concentrations were above MTCA Method A cleanup levels. Please see corresponding laboratory report for detected HVOCs.
a = diesel and heavy oil results were reported in two values. The first value is obtained by Method NWTPH-DX with Silica Gel Cleanup; the second value is obtained by NWTPH-Dx without Silica Gel Cleanup.
b = Compound was found in the blank and sample.
J = Result is less than the reporting limits but greater than or equal to the method detection limits and the concentration is an approximate value.

Appendices

Appendix A
Field Forms

GHD

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: JPS	GHD Mgr: Brian Peters	Field Rep: BP
Project Number: 0162308	Date: 3/25/16	Site Address: 2164 Mapleville Hwy Maple Valley WA
General Tasks: GW Monitoring		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N):	Equipment Checked (Y/N):	PID Calibrated (Y/N):

Time	Activity/Comments	SWA
07:30	depart for site	
09:00	Arrive onsit, Don PPE, check in w/ attendant H&S forms	
09:15	begin gauging wells	
10:20	complete gauging, begin calibrate YSI, La Motte 2020WE	
1040	set up on MW-16, replace tubing	
1110	begin purging MW-16	
1030	collect GW-032516-BP-MW-16, break down EZ	
1158	setup on MW-14	
12:10	begin purge MW-14	
12:35	collect GW-032516-BP-MW-14, break down EZ rob to MW-15	
1300	begin purge MW-15	
1320	collect GW-032516-BP-MW-15	
1345	break down EZ set purge water in bucket (approx 2 gal)	
1415	Depart site	
1500	Drop off sample @ lab (Pace) return to office	

SWA Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
5: Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours 7.5 Miles _____ Other _____ Shared _____

Water Level Record
(Form SP-11)

Project Name: JFS
Job No.: 0623088
Client:

Location: 21641 Maple Valley Hwy
Date: 3/25/16
Engineer/Geologist: Brian Parley

Observation Well	Top of Casing Elevation A		Depth to Water B		Water Level Elevation A-B		DTB
	feet	metres	feet	metres	feet	metres	
MW-1B 2"			13.35				24.72
MW-2B 2"			11.94				24.15
MW-12			13.75				20.20
MW-13			13.28				20.02
MW-14			14.94				19.95
MW-15			14.09				20.18
MW-16			15.59				25.18

GHD

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: JFS
Ref. No.: 0602308

Date: 3/25/16
Personnel: BM

Monitoring Well Data:

Well No.: MW-14
Vapour PID (ppm): 0
Measurement Point: TOC
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 19.95
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~ 18
Well Diameter, D (cm/in): 2"
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 14.94

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
12:18	120	15.25		9.23	0.207	1063 AU	2.79	6.43	77.4		
12:22	120	15.35		9.13	0.203	96.9 NTU	1.83	6.41	63.3		
12:26	120	15.40		9.08	0.202	72.2 NTU	3.82	6.42	53.6		
12:30	120	15.42		9.14	0.203	34.5	2.27	6.41	49.8		
12:34	120	15.44		9.13	0.203		2.25	6.41	46.2		

Notes: Sample time 12:35

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

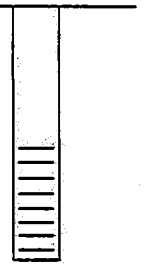
Project Name: JFS
Ref. No.: 0623098

Date: 3/25/16
Personnel: Bob Parby

Monitoring Well Data:

Well No.: MW-15
Vapour PID (ppm): —
Measurement Point: —
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 20.10
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~17
Well Diameter, D (cm/in): 2"
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 14.09



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1300	120	14.10		9.80	0.202	19.3	10.77	6.38	48.8		
1304	120	14.10		9.74	0.202	8.35	10.45	6.33	49.3		
1308	120	14.10		9.69	0.204	7.82	10.61	6.31	51.5		
1312	120	14.10		9.68	0.204	5.79	10.85	6.34	52.8		
1316	120	14.10		9.64	0.206	5.75	10.75	6.31	55.7		

Notes: Sample Time 1320

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

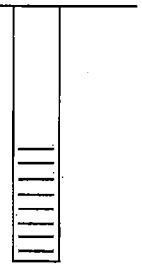
Project Name: JFS 062308
Ref. No.:

Date: 3/25/16
Personnel: PP

Monitoring Well Data:

Well No.: MW-16
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 25.18
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in): 2"
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.58



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1110		15.62		9.50	0.190	1116 AU	7.61	6.55	43.1		reddish/brown cloudy
1114		15.62		9.47	0.189	870 AU	6.81	6.43	42.9		
1118		15.62		9.49	0.189	632 AU	6.57	6.35	42.5		
1122		15.62		9.54	0.189	43 NTU	~~8.54~~ 6.18	6.20	43.7		
1126		~~15.62~~		9.58	0.190	70 NTU	5.96	6.26	45.4		

Notes: trouble shoot tubing - replaced tubing Sample time 1130

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-~~Custody is~~ a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036			Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Purchase Order No.		Pace Quote Reference:	
Phone:	Fax	Client Project ID:	062308-2016-**** JFS Maple Valley Hwy	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)	Container Order Number:		Pace Profile #:	35119 #1

Regulatory Agency

State / Location: WA / Maple Valley

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM#	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: BTEX by 8260	NWTPH-Gx	NWTPH-Dx	Residual Chlorine (Y/N)
1	Trip Blank	OT	G						4				4						~~X~~	X		
2	GW-032516-BP-MW-16	WT	G	3/25	1130	3/25	1130		8				8						X	X	X	
3	GW-032516-BP-MW-14	WT	G	3/25	12:35	3/25	12:35		8				8						X	X	X	
4	GW-032516-BP-MW-15	WT	G	3/25	1320	3/25	1320		8				8						X	X	X	
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Brian Parker	3/25/16	15:05	Jenni Gross / Pace	3/25/16	15:05	4.3	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

CONESTOGA-ROVERS & ASSOCIATES

Instrument Calibration Form

YSI 556

Project Name: JFS

Project Number: 062309

Location: 21641 Mayk Valley Hwy

Instrument: Lamotk 2020

Model: YSI 556, Lamotk 2020 WE

Serial/Control Number:

		Calibration Standard						
Date	Time	Standard	Concentration (units)	Mfg/Lot No.	Expiration Date	Initial Reading (units)	Final Reading (units)	Remarks
3/25/16	1020	7.0, 4.0 10.0	pH		/	7.01/7.02 4.0/4.05		YSI 556
3/25/16	1029							Lamotk 2020WE
3/25/16	1020	1.409 MS/cm	cond.		./	1.41a	1.40a.	YSI 556

OPERATOR

Project Planning Completion and Follow-Up Checklist
(Form SP-02)

Date: 3/30/16 (mm/dd/yyyy) Reference No. _____

Prior Planning and Coordination

- [x] Confirm well numbers, location and accessibility
- [x] Review of project documents, Health and Safety Plan (HASP), sampling Quality Assurance/Quality Control (QA/QC) and site-specific sampling requirements
- [x] Historical well data; depth, pH, performance and disposition of purge water
- [x] Site access notification and coordination
- [x] Coordination with laboratory through GHD chemistry group
- [x] Procurement, inventory and inspection of all equipment and supplies
- [x] Prior equipment preparation, calibration or maintenance
- [x] All utilities located and approved

Filed Procedure

- [x] Instruments calibrated daily
- [x] Sampling equipment decontaminated in accordance with the QAPP
- [x] Field measurements and sampling details logged in appropriate field books or an appropriate field form
- [x] Well volume calculated and specified volumes removed
- [x] Specified samples, and QA/QC samples taken per Quality Assurance Project Plan (QAPP)
- [x] Samples properly labeled, preserved and packed
- [x] Sampling locations secured or completed according to work plan
- [x] Sample date times, locations and sample numbers have all been recorded in applicable log(s)
- [x] Samples have been properly stored if not shipped/delivered to lab same day
- [x] Samples were shipped with complete and accurate chain of custody record

Follow-Up Activities

- [ ] Questionable measurements field verified
- [x] Confirm all samples collected
- [x] All equipment has been maintained and returned
- [ ] Sampling information reduced and required sample keys and field data distributed
- [ ] Chain of custody records filed
- [ ] Expendable stock supplies replaced
- [x] GHD and client-controlled items returned (i.e., keys)
- [x] Arrange disposal of investigation generated wastes with client
- [x] Confirm all samples collected

Completed By: Brie Pauly (please print) **Date:** 3/30/16 (mm/dd/yyyy)

Groundwater Sampling Equipment and Supply Checklist
(Form SP-05)

Date: 3/25/16 (mm/dd/yyyy)

Reference No. _____

Equipment

- ☐ Required sampling equipment (as per work plan or QAPP)

Instruments

- Water level indicator
- Thermometer *
- ☑ pH meter *
- ☑ Conductivity probe *
- ☑ Turbidity meter
- ☑ HNu/OVA/Microtip
- ☑ Air monitoring equipment

Supplies

- ☑ Gasoline can/gas
- ☑ Polypropylene rope
- ☐ Aluminum foil
- ☐ Paper towels
- ☑ pH buffer solution(s)
- ☑ Conductivity standard solution(s)
- ☑ Decontamination fluids (as per work plan and QAPP)
- ☑ Sample jars (extra)
- ☑ Sample jar labels (GHD) materials
- ☑ Cooler(s)/ice packs/packing materials
- ☑ Trash bags
- ☑ Sample preservatives
- ☑ Plastic spray bottles
- ☑ Plastic basin or pan
- ☑ Sample filter (on line or external filter)
- ☑ Polyethylene sheeting
- ☑ First aid kit
- ☑ Personal protective equipment (as per HASP)

Documentation

- ☑ Chain of custody forms
- ☑ Well logs
- ☑ Notebook/Field book
- ☑ Photolog
- ☑ Site pass/badge
- ☑ Federal Express manifests
- ☑ Previous well logs/previous historical well data
- ☑ Site map
- ☑ Blank well data forms

Drop Samples off

Miscellaneous

- ☑ Well cap keys
- ☑ Bolt cutters
- ☑ Camera/film
- ☑ Knife
- ☑ Spare batteries for instruments
- ☑ Lock deicer (winter)
- ☐ Reinforced packing tape
- ☐ Pen/pencil/indelible marking pen
- ☐ Tool box
- ☐ Spare locks/keys
- ☐ On site transportation (all-terrain vehicle/snowmobiles)

Completed By: Brian Parker (please print) Date: 3/25/16 (mm/dd/yyyy)

GHD

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: JFS, Maple Valley	GHD Mgr: Steph Rasmussen	Field Rep: Brad Parks
Project Number: 062-308	Date: 7/11/16	Site Address: 21641 Maple Valley Hwy
General Tasks: GWM		Maple Valley WA
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N):	Equipment Checked (Y/N):	PID Calibrated (Y/N):

Time	Activity/Comments	SWA
1200	Arrive onsite, Don ppe, check in w/ attendant	
1215	begin gauging wells	
1300	finish gauging wells, Calibrate YSI	
	pH stds 4.0 7.0 10.0 meas 7.0 = 7.07	
	Cond 1409 µS/cm 10.0 = 10.01	
	meas 1411 µS/cm	
	Turb. 0.1 NTU, 15 NTU, 100 NTU, 750 NTU	
	meas 750 NTU = 739 NTU	
	15 NTU = 14.9 NTU	
*		
1400	begin purging MW-16	
1425	collect GW-062308-BP-MW-16, mob to MW-14	
1449	begin purging MW-14	
1505	collect GW-062308-BP-MW-14, mob to MW-15	
1531		
1545	collect GW-062309-BP-MW-15	
16000	dump waste; complete field notes	
16000	depart site	
*	pump had broken toggle switch, had to troubleshoot to get it to pump	

SWA Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036	PROJ #	062308	Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Purchase Order No.	4077615	Pace Quote Reference:	
Phone:	Fax	Client Project ID:	[illegible]	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)	Container Order Number:	062308	Pace Profile #:	4825 / 2

Regulatory Agency

State / Location: WA / Fife

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	BTEX by 8260	NWTPHGx	NWTPHDx + Dp Bp Lead by comp										Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS			2016 DATE	TIME	DATE	TIME																						
1	Trip Blank	OT	G						4				4																
2	GW-062308-BP-MW-16			7/11	1425	7/11	1425		9				9						X	X	X								
3	GW-062308-BP-MW-14			7/11	1505	7/11	1505		9				9						X	X	X								
4	GW-062308-BP-MW-15			7/11	1545	7/11	1545		9				9						X	X	X								
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
B	Brian Parley	7/11/16	1840				

site 062308
21641 Maple Valley Hwy
Maple Valley, WA

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:						
SIGNATURE of SAMPLER:	DATE Signed:					

Water Level Record
(Form SP-11)

Project Name: _____ **Location:** _____
Job No.: 062 **Date:** 7/11/16
Client: _____ **Engineer/Geologist:** _____
DTB

Observation Well	Top of Casing Elevation A		Depth to Water B		Water Level Elevation A-B	
	feet	metres	feet	metres	feet	metres
MW-1B			14.00		24.62	
MW-2B			12.34		24.0	
MW-12			14.37		20.15	
MW-13			13.92		20.00	
MW-14			15.48		20.10	
MW-15			14.60		20.15	
MW-16			15.98		25.35	

GHD

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

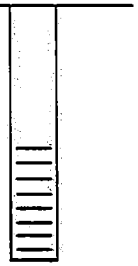
Project Name: Maple Valley JFS
Ref. No.:

Date: 7/11/16
Personnel: BP

Monitoring Well Data:

Well No.: MW-16
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 25.35
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.98



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	µS/cm Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1400	100 mL/m	16.05		15.00	162	201	7.97	5.66	16.7		
1407	100 mL/m	16.05		14.42	159	241	7.62	5.69	22.6		
1413	100 mL/m	16.05		14.02	155	223	7.61	5.77	22.9		
1417	100 mL/m	16.05		13.97	154	215	7.53	5.82	22.3		
1422	100 mL/m	16.05		14.04	154		7.97	5.92	24.9		

Notes: Rivers w/ pump Sample fill 1425

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: maple valley
Ref. No.:

Date: 7/12/16
Personnel: Ben Pauley

Monitoring Well Data:

Well No.: MW14
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 20.10
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.48

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
			Precision Required:	±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1449	100mL/m	15.78		16.51	179	62.1	4.26	6.39	-69.4		clear/odor
1453	100mL/m	15.82		16.02	176	53.8	6.65	6.19	-55.8		
1457	100 mL/m	15.90		14.94	173	22.2	6.77	6.13	-53.5		clear/odor
1501	100 mL/m	15.92		14.85	173	14.1	6.46	6.06	-47.8		
1504	100 mL/m	15.93		14.96	173		6.09	6.09	-45.8		

Notes: Sample time 1505

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

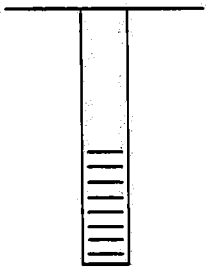
Monitoring Well Record for Low-rlow Purging
(Form SP-09)

Project Data:
Project Name: Maple valley
Ref. No.:

Date: 7/11/16
Personnel: Bm Pauly

Monitoring Well Data:
Well No.: MW-15
Vapour PID (ppm):
Measurement Point: TOC
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 14.64



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1531	100 mL/m	14.64		16.55	169	8.35	6.67	6.37	0.1		Clear
1534	100 mL/m	14.64		16.02	168	3.74	6.90	10.16	16.5		
1538	100 mL/m	14.64		15.86	166		10.03	10.03	26.2		Clear
							8.95				
1541	100 mL/m	14.64		15.72	166	3.65	9.38	10.02	26.2		
1544	100 mL/m	14.64		15.63	169	2.31	9.57	6.88	22.8		

Notes: Sample time 1545

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Field Kit Checklist

Check to make sure your field kit has all of the following items:

- ☐ First Aid Kit
- ☐ Eye Wash Kit – Double Check to make sure it is there!!
- ☐ Earplugs
- ☐ Nitrile Gloves – check for your SIZE & correct monthly COLOR!!!
- ☐ Kevlar Glove Liners
- ☐ Caution Tape
- ☐ Spill Pads
- ☐ Scrubs/wet wipes
- ☐ Knee Pad
- ☐ Garden Spade
- ☐ Paper Towels
- ☐ Trash Bags
- ☐ Ziploc Bags
- ☐ Bag of Sharpies, other pens, & Geotech gauge
- ☐ Marking Paint
- ☐ Duct Tape
- ☐ Packing Tape
- ☐ Spray Bottle with Diluted Liqui-nox Solution – Is it full?
- ☐ Munsel Chart
- ☐ Air Horn
- ☐ Measuring Wheel
- ☐ Toolbag
  - o Tape Measure
  - o Hex-Head/ Allen Wrench set
  - o Drum Wrench
  - o Large crescent wrench
  - o Small crescent wrench
  - o Flat head screwdriver
  - o Phillips head screwdriver
  - o Hammer
  - o Pliers
  - o Large Channel Lock
  - o Small Channel Lock
  - o Leather Work Gloves
  - o Utility Knife – Self retracting
  - o Mag-Lite
  - o Ratchet Handle
  - o Ratchet Set
- ☐ Fire Extinguisher
- ☐ Visqueen
- ☐ Isobutylene
- ☐ PID & Regulator
- ☐ Interface Probe/Water Level Meter
- ☐ Camera
- ☐ Drum Labels
- ☐ Coolers & Sampling Containers
- ☐ Packing Material
- ☐ Cones/Barricades
- ☐ Wheel Chocks
- ☐ Bailers & Bailer String
- ☐ PPE
- ☐ Extra PPE (in case someone forgets)
- ☐ HASP Binder
- ☐ Field Documents Binder
  - o Tailgate form + Sign Sheet
  - o Boring logs
  - o Map to site/ directions
  - o Daily field notes
  - o PID calibration sheet
  - o Utility locate field form
  - o HASP acknowledgement
  - o Phone Numbers for Office
  - o Scope of Work
  - o COCs
  - o Historical data (Lab)
  - o Historical boring logs
  - o Stop Work Authority Reports
  - o Access Agreements
  - o Permits (street use)
  - o Permits (Hot-work)
  - o Utility Locate / One Call documents
  - o Utility Locate report
  - o USB phone charger / cable
  - o Boring Log example
  - o Soil Chart - Cheat Sheet
  - o Tiedowns

GW Sampling

- o Peri pump
- o Masterflex tubing
- o Drum + Labels
- o Water level indicator/interface probe\
- o Turbidity meter
- o PID w/ cal gas
- o Bottles
- o Trip blank
- o Labels
- o Operator Checklist
- o Buckets for purge water
- o Field forms
- o Bailers/ string
- o HASP

Project Planning Completion and Follow-Up Checklist
(Form SP-02)

Date: 7/11/16 (mm/dd/yyyy) Reference No. _____

Prior Planning and Coordination

- [x] Confirm well numbers, location and accessibility
- [x] Review of project documents, Health and Safety Plan (HASP), sampling Quality Assurance/Quality Control (QA/QC) and site-specific sampling requirements
- [x] Historical well data; depth, pH, performance and disposition of purge water
- [x] Site access notification and coordination
- [x] Coordination with laboratory through GHD chemistry group
- [x] Procurement, inventory and inspection of all equipment and supplies
- [x] Prior equipment preparation, calibration or maintenance
- [x] All utilities located and approved

Filed Procedure

- [x] Instruments calibrated daily
- [x] Sampling equipment decontaminated in accordance with the QAPP
- [x] Field measurements and sampling details logged in appropriate field books or an appropriate field form
- [x] Well volume calculated and specified volumes removed
- [x] Specified samples, and QA/QC samples taken per Quality Assurance Project Plan (QAPP)
- [x] Samples properly labeled, preserved and packed
- [x] Sampling locations secured or completed according to work plan
- [x] Sample date times, locations and sample numbers have all been recorded in applicable log(s)
- [x] Samples have been properly stored if not shipped/delivered to lab same day
- [ ] Samples were shipped with complete and accurate chain of custody record

Follow-Up Activities

- [x] Questionable measurements field verified
- [x] Confirm all samples collected
- [x] All equipment has been maintained and returned
- [x] Sampling information reduced and required sample keys and field data distributed
- [x] Chain of custody records filed
- [x] Expendable stock supplies replaced
- [ ] GHD and client-controlled items returned (i.e., keys)
- [x] Arrange disposal of investigation generated wastes with client
- [x] Confirm all samples collected

Completed By: Brian Pauley (please print) Date: 7/11/16 (mm/dd/yyyy)

Groundwater Sampling Equipment and Supply Checklist
(Form SP-05)

Date: 7/11/16 (mm/dd/yyyy) Reference No. 062308

Equipment

- [x] Required sampling equipment (as per work plan or QAPP)

Instruments

- [ ] Water level indicator
- [ ] Thermometer *
- [x] pH meter *
- [x] Conductivity probe *
- [x] Turbidity meter
- [x] HNu/OVA/Microtip
- [x] Air monitoring equipment

Supplies

- [x] Gasoline can/gas
- [x] Polypropylene rope
- [x] Aluminum foil
- [x] Paper towels
- [x] pH buffer solution(s)
- [x] Conductivity standard solution(s)
- [ ] Decontamination fluids (as per work plan and QAPP)
- [x] Sample jars (extra)
- [x] Sample jar labels (GHD) materials
- [x] Cooler(s)/ice packs/packing materials
- [x] Trash bags
- [x] Sample preservatives
- [x] Plastic spray bottles
- [x] Plastic basin or pan
- [x] Sample filter (on line or external filter)
- [x] Polyethylene sheeting
- [x] First aid kit
- [x] Personal protective equipment (as per HASP)

Documentation

- [ ] Chain of custody forms
- [ ] Well logs
- [ ] Notebook/Field book
- [ ] Photolog
- [ ] Site pass/badge
- [ ] Federal Express manifests
- [ ] Previous well logs/previous historical well data
- [ ] Site map
- [ ] Blank well data forms

Miscellaneous

- [x] Well cap keys
- [x] Bolt cutters
- [x] Camera/film
- [x] Knife
- [x] Spare batteries for instruments
- [x] Lock deicer (winter)
- [x] Reinforced packing tape
- [x] Pen/pencil/indelible marking pen
- [x] Tool box
- [x] Spare locks/keys
- [x] On site transportation (all-terrain vehicle/snowmobiles)

Completed By: Barb Parker (please print) Date: 7/11/16 (mm/dd/yyyy)

GHD

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: JFS ; Maple Valley	GHD Mgr: Brian Peters	Field Rep: Brian Parker
Project Number: 062308	Date: 9/29/16	Site Address: 21641 Maple Valley Hwy
General Tasks: GW M		Maple Valley Hwy
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N):	Equipment Checked (Y/N):	PID Calibrated (Y/N):

Time	Activity/Comments	SWA
0906	load truck	
0915	Depart for Site	
01025	Arrive onSite ; check in w/ attendant	
1040	begin gauging	
1135	begin set up on MW-16 (complete gauging)	
1156	begin purging MW-16	
1225	collect GW-062308-092716-BP-MW-16	
1250	mob to MW-14 ; set up begin purge	
1310	collect GW-062308-092716-BP-MW-14	
1320	mob to MW-15 , set up	
1324	begin purging MW-16	
1355	collect GW-062308-092716-BP-MW-15	
1420	load vehicle dump purge water	
	purchase ice ; check in w/ PM	
1450	Depart Site	
1545	Drop samples off	
1640	EOD	

SWA Key:	1: SPSA/Task Change	2: Pedestrian in Proximity	3: Unauthorized Personnel	4: Review Work Process
Inspection	6: Safety Orientation	7: Uncontrollable Factor	8: Minor First Aid	9: Major (explain in notes)

Hours _____ Miles _____ Other _____ Shared _____

CONESTOGA-ROVERS & ASSOCIATES

Instrument Calibration Form

YSI / LaMotte 2100E

Project Name: _____

Project Number: 062308

Location: Maple Valley

Instrument: _____

Model: 556

Serial/Control Number: _____

		Calibration Standard						
Date	Time	Standard	Concentration (units)	Mfg/Lot No.	Expiration Date	Initial Reading (units)	Final Reading (units)	Remarks
9/29/14	1145	4/7/10				7.00 4.00	4.02	/ 7.08
						9.99		
						14.09 mS/cm	1.40	8 ms/cm
LaMotte		1.0, 10.0	NTU				9.99	NTU

OPERATOR BP

Water Level Record
(Form SP-11)

Project Name: JFS, Maple Valley WA
Job No.: 0623088
Client:
Location: Maple Valley, WA
Date: 9/29/16
Engineer/Geologist:

Observation Well	Top of Casing Elevation A		Depth to Water B		Water Level Elevation A-B	
	feet	metres	feet	metres	feet	metres
MW-2B	2 brok tabs/miss bolt		12.78		24.14	
MW-1B	2 brok tabs/no bolts		14.41		25.68	
MW-13	no bolts/rain holes		14.38		20.02	
MW-12	no bolts		14.74		20.19	
MW-14 NEW			15.81		19.95	
MW-15 NEW			14.97		20.10	
MW-16 NEW			16.25		25.32	

GHD

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

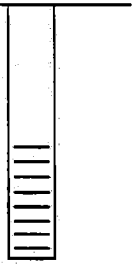
Project Name: JFS Maple Valley
Ref. No.: 0623092

Date: 9/29/16
Personnel: BP

Monitoring Well Data:

Well No.: MW-16
Vapour PID (ppm): /
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): ≈ 18
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 16.25



1156 - begin purging - replaced tubing (masterflex) 12:05

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1205	16.27	100 mL/min		14.25	0.201	11.4	8.28	6.29	82.9		
1209	16.28	↓		14.36	0.200	8.22	5.88	6.34	69.3		
1213	16.29			14.36	0.195	4.86	5.64	6.33	68.2		
1217	16.28			14.31	0.192	5.00	5.33	6.34	67.8		
1221	16.29			14.30	0.189	11.8	5.09	6.33	68.6		

Notes: Sample MW 1225

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

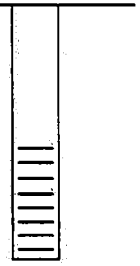
Project Data:

Project Name: 062308 (JFS Maple valley) Date: 9/29/16
Ref. No.: Personnel: BP

Monitoring Well Data:

Well No.: MW-14
Vapour PID (ppm): /
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): ≈ 17
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.81



Start purge 12:50

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1252	100 mL/m	16.05		15.87	0.236	error/OR	5.77	6.42	12.2		dark gray
1256	100mL/m	16.07		15.44	0.218	1280	3.73	6.40	8.9		
1200	100mL/m	16.09		15.28	0.210	236	4.57	6.36	11.2		cloudy
1304	100mL/m	16.11		15.31	0.207	60.1	4.65	6.33	14.3		
1307	100 mL/m	16.11		15.35	0.210	46.6	5.06	6.30	18.7		

Notes: Sample time 1310

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-flow Purging
(Form SP-09)

Project Data:

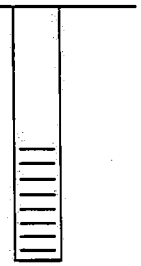
Project Name: JFS Maple Valley
Ref. No.: 0023308

Date: 2/29/16
Personnel: BP

Monitoring Well Data:

Well No.: MW-15
Vapour PID (ppm): 1
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~ 16'
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 14.97



1334 hrs pump

Time	Pumping Rate (mL/min)	~~Depth to Water~~ (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes ~~Purged~~[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1336			15.03	17.04	0.207	97.4	8.28	6.21	58.4		Clear
1340			~~15.03~~	16.02	0.212	36.9	5.91	6.16	64.8		
1344			15.00	16.93	0.210	16.1	5.81	6.16	68.1		Clear
1348			15.01	17.09	0.212	5.07	5.78	6.16	70.3		
1352			15.02	17.03	0.210	2.04	5.80	6.16	73.2		Clear

Notes: Sample time 1355

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: GHD Services	Report To: Brian Pauley	Attention:
Address: 20818 44th Ave W	Copy To:	Company Name:
Lynnwood, WA 98036		Address:
Email:	Purchase Order #:	Pace Quote:
Phone: Fax	Project Name: 062308-2016 JFS Maple Valley Hwy	Pace Project Manager: jennifer.gross@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 4825 / 2

WA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test: BTEX by 8260	NWTPHGx	Trip BLANK	NWTPH-DX	Residual Chlorine (Y/N)
1	Trip blank	WT	G	9/29	1225	9/29	1225		4									X	X		X	
2	GW-062308-092916-BP-MW-16			9/29	1225	9/29	1225		9									X	X		X	
3	GW-062308-092916-BP-MW-14			9/29	1310	9/29	1310		9									X	X		X	
4	GW-062308-092916-BP-MW-5			9/29	1355	9/29	1355		9									X	X		X	
5																						
6																						
7																						
8																						
9																						
10																						
11																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Brian Pauley/GHD	9/29/16	1545	[signature]	9/29/16	1545	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Pauley

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9/29/16

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Field Kit Checklist

Check to make sure your field kit has all of the following items:

- ☐ First Aid Kit
- ☐ Eye Wash Kit – Double Check to make sure it is there!!
- ☐ Earplugs
- ☐ Nitrile Gloves – check for your SIZE & correct monthly COLOR!!!
- ☐ Kevlar Glove Liners
- ☐ Caution Tape
- ☐ Spill Pads
- ☐ Scrubs/Wet wipes
- ☐ Knee Pad
- ☐ Garden Spade
- ☐ Paper Towels
- ☐ Trash Bags
- ☐ Ziploc Bags
- ☐ Bag of Sharpies, other pens, & Geotech gauge
- ☐ Marking Paint
- ☐ Duct Tape
- ☐ Packing Tape
- ☐ Spray Bottle with Diluted Liqui-nox Solution – Is it full?
- ☐ Munsel Chart
- ☐ Air Horn
- ☐ Measuring Wheel
- ☐ Toolbag
  - o Tape Measure
  - o Hex-Head/Allen Wrench set
  - o Drum Wrench
  - o Large crescent wrench
  - o Small crescent wrench
  - o Flat head screwdriver
  - o Phillips head screwdriver
  - o Hammer
  - o Pliers
  - o Large Channel Lock
  - o Small Channel Lock
  - o Leather Work Gloves
  - o Utility Knife – Self retracting
  - o Mag-Lite
  - o Ratchet Handle
  - o Ratchet Set
- ☐ Fire Extinguisher
- ☐ Visqueen
- ☐ Isobutylene
- ☐ PID & Regulator
- ☐ Interface Probe/Water Level Meter
- ☐ Camera
- ☐ Drum Labels
- ☐ Coolers & Sampling Containers
- ☐ Packing Material
- ☐ Cones/Barricades
- ☐ Wheel Chocks
- ☐ Bailers & Bailer String
- ☐ PPE
- ☐ Extra PPE (in case someone forgets)
- ☐ HASP Binder
- ☐ Field Documents Binder
  - o Tailgate form + Sign Sheet
  - o Boring logs
  - o Map to site/ directions
  - o Daily field notes
  - o PID calibration sheet
  - o Utility locate field form
  - o HASP acknowledgement
  - o Phone Numbers for Office
  - o Scope of Work
  - o COCs
  - o Historical data (Lab)
  - o Historical boring logs
  - o Stop Work Authority Reports
  - o Access Agreements
  - o Permits (street use)
  - o Permits (Hot-work)
  - o Utility Locate / One Call documents
  - o Utility Locate report
  - o USB phone charger / cable
  - o Boring Log example
  - o Soil Chart - Cheat Sheet
  - o Tiedowns

GW Sampling

- o Peri pump
- o Masterflex tubing
- o Drum + Labels
- o Water level indicator/interface probe
- o Turbidity meter
- o PID w/ cal gas
- o Bottles
- o Trip blank
- o Labels
- o Operator Checklist
- o Buckets for purge water
- o Field forms
- o Bailers/ string
- o HASP

0915

9/29/16

DAILY FIELD REPORT

Submit copy to Company Safety Officer

Project Name: JFS, Maple Valley	GHD Mgr: Brit Parley	Field Rep: Brit Parley
Project Number: 062 308	Date: 12/6/16	Site Address: 21641 Maple Valley Hwy Maple Valley, WA
General Tasks: GW Mon		
Emergency Drill Conducted:		
HASP Meeting Conducted (Y/N):	Equipment Checked (Y/N):	PID Calibrated (Y/N):

Time	Activity/Comments
09:00 -	load truck, depart for site
10:40	Arrive onsite, begin gauging wells
1130 - 1145	calibrate - YSI, Lamotte
1225	collect GW - 120616 - BP - MW-16
1330	collect GW - 120616 - BP - MW-14
1400	collect GW - 120616 - BP - MW-15
1440	depart site
15:15	depart site
16:30	EOD

Hours _____ Miles _____ Other _____ Shared _____

Water Level Record
(Form SP-11)

Project Name: JFS - Maple Valley
Job No.: 062 309
Client:
Location: Maple Valley, WA
Date: 12/7/16
Engineer/Geologist:

Observation Well	Top of Casing Elevation A		Depth to Water B		Water Level Elevation A-B	
	feet	metres	feet	metres	feet	metres
MW-1B			13.57		24.63	
MW-2B			12.05		24.03	
MW-13			13.56		19.94	
MW-12			13.96		20.15	
MW-14			15.11		20.01	
MW-15			14.32		20.04	
MW-16			15.73		25.25	

GHD

CONESTOGA-ROVERS & ASSOCIATES

Instrument Calibration Form

Project Name: Mufla Valley, JFS

Project Number: 0623093

Location: _____

Instrument: YSI Professional Plus

Model: Lamotte 2020we

Serial/Control Number: rental

Date	Time	Calibration Standard: Standard	Calibration Standard: Concentration (units)	Calibration Standard: Mfg/Lot No.	Calibration Standard: Expiration Date	Initial Reading (units)	Final Reading (units)	Remarks
12/6/17	1145	4.0 7.0 10.0			7/20/19	7.09 (7.00 std)		
Lamotte								
2020WC				10.0	9.95	NTU		

OPERATOR _____

Monitoring Well Record for Low-[illegible] Purging
(Form SP-09)

Project Data:

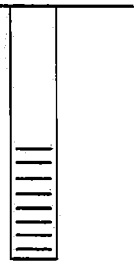
Project Name: 062309 JFS Maple Valley
Ref. No.:

Date: 12/6/14
Personnel: BJP

Monitoring Well Data:

Well No.: MW-16
Vapour PID (ppm):
Measurement Point: /
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 25.25
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~ 18
Well Diameter, D (cm/in): -
Well Screen Volume, V_s (L)[2]: -
Initial Depth to Water (m/ft): 15.73



begin purge @ 12:00

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1203	100 mL/m		15.73	12.4	0.148	31.0	5.83	6.07	14.6	0.25g	
1206	100mL/m		15.73	12.7	0.146	35.8	5.23	6.07	13.7	0.5g	Clear
1209	100mL/m		15.74	12.7	0.146	34.2	5.20	6.04	15.9	0.75g	
1212	100 mL/m		15.75	12.6	0.145	30.0	5.27	6.05	17.7	1.0g	Clear
1215	100mL/m		15.76	12.6	0.144	28.2	5.20	6.07	20.0		

Notes: Sample time 1225

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

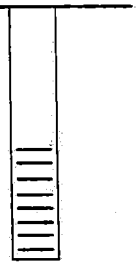
Monitoring Well Record for Low-. N Purging
(Form SP-09)

Project Data:
Project Name: JFS Maple Valley
Ref. No.: 0602 3090

Date: 12/6/14
Personnel: BZ JP

Monitoring Well Data:
Well No.: MW-14
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 20.01
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~ 18'
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 15.11



bgs prg @ ~~1242~~ 1250 ISSue w/ pump @ 13:05

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1310	120 mL/	15.50		10.6	0.170	1699AV	1.65	6.19	-43.0	0.25	gray cloudy
1313	120 mL/	15.63		11.1	0.172	1754 AV	0.57	6.23	-48.9	0.5	Sl. gray cloudy
1316	120 mL/	15.69		11.0	0.171	1336 AV	0.53	6.25	-48.6	0.75	gray cloudy
1319	120 mL/	15.70		11.2	0.170	709AV	0.53	6.26	-47.0	1.0	
1322	120 mL/	15.74		11.4	0.170	621 AV	0.47	6.27	-47.1	1.2	gray/cloudy

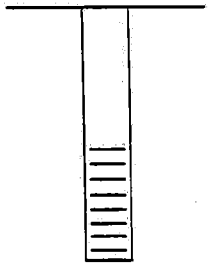
Notes: Sample time 1330

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=n*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=n*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-[illegible] Purging
(Form SP-09)

Project Data:
Project Name: JFS, Maple Valley
Ref. No.: 061-308
Date: 12/6/16
Personnel: [illegible]

Monitoring Well Data:
Well No.: MW-15
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft): 20.01
Depth of Sediment (m/ft):
Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]: ~ 17'
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 14.32



heavy purge 1340

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required:				±3 %	±0.005 or 0.01[5]	±10 %	±10 %	±0.1 Units	±10 mV		
1342	100 mL/m		14.30	21.3	0.147	60.4	17.37	6.23	-2.6		clear/
1345	100 mL/m		14.32	11.4	0.150	20.4	9.16	6.21	2.1		odor/NO
1348	100 mL/m		14.32	11.5	0.150	7.88	9.34	6.21	3.2		
1351	100 mL/m		14.30	11.7	0.151	4.16	9.62	6.24	5.5		
1354	100 mL/m		14.30	11.4	0.150	3.25	10.13	6.26	6.4		

Notes: Sample time 1400

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Field Kit Checklist

Check to make sure your field kit has all of the following items:

- ☐ First Aid Kit
- ☐ Eye Wash Kit - Double Check to make sure it is there!!
- ☐ Earplugs
- ☐ Nitrile Gloves - check for your SIZE & correct monthly COLOR!!!
- ☐ Kevlar Glove Liners
- ☐ Caution Tape
- ☐ Spill Pads
- ☐ Scrubs/wet wipes
- ☐ Knee Pad
- ☐ Garden Spade
- ☐ Paper Towels
- ☐ Trash Bags
- ☐ Ziploc Bags
- ☐ Bag of Sharpies, other pens, & Geotech gauge
- ☐ Marking Paint
- ☐ Duct Tape
- ☐ Packing Tape
- ☐ Spray Bottle with Diluted Liqui-nox Solution - Is it full?
- ☐ Munsel Chart
- ☐ Air Horn
- ☐ Measuring Wheel
- ☐ Toolbag
  - o Tape Measure
  - o Hex-Head/Allen Wrench set
  - o Drum Wrench
  - o Large crescent wrench
  - o Small crescent wrench
  - o Flat head screwdriver
  - o Phillips head screwdriver
  - o Hammer
  - o Pliers
- ☐ Fire Extinguisher
- ☐ Visqueen
- ☐ Isobutylene
- ☐ PID & Regulator
- ☐ Interface Probe/Water Level Meter
- ☐ Camera
- ☐ Drum Labels
- ☐ Coolers & Sampling Containers
- ☐ Packing Material
- ☐ Cones/Barricades
- ☐ Wheel Chocks
- ☐ Bailers & Bailer String
- ☐ PPE
- ☐ Extra PPE (in case someone forgets)
- ☐ HASP Binder
- ☐ Field Documents Binder
  - o Tailgate form + Sign Sheet
  - o Boring logs
  - o Map to site/ directions
  - o Daily field notes
  - o PID calibration sheet
  - o Utility locate field form
  - o HASP acknowledgement
  - o Phone Numbers for Office
  - o Scope of Work
  - o COCs
  - o Historical data (Lab)
  - o Historical boring logs
  - o Stop Work Authority Reports
  - o Access Agreements
  - o Permits (street use)
  - o Permits (Hot-work)
  - o Utility Locate / One Call documents
  - o Utility Locate report
  - o USB phone charger / cable

field time trip blank

- o Large Channel Lock
- o Small Channel Lock
- o Leather Work Gloves
- o Utility Knife - Self retracting
- o Mag-Lite
- o Ratchet Handle
- o Ratchet Set

- o Boring Log example
- o Soil Chart - Cheat Sheet
- o Tiedowns

GW Sampling

- o Perl pump
- o Masterflex tubing
- o Drum + Labels
- o Water-level indicator/interface probe\
- o Turbidity meter
- o PID w/ cal gas
- o Bottles
- o Trip blank
- o Labels
- o Operator Checklist
- o Buckets for purge water
- o Field forms
- o Bailers/ string
- o HASP

set trip

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036			Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Purchase Order No.		Pace Quote Reference:	
Phone:	Fax:	Client Project ID:	062308-2016 JFS Maple Valley Hwy	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)	Container Order Number:		Pace Profile #:	35119 / 1

Regulatory Agency: —

State / Location: WA / Maple Valley

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM#	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): BTEX	NWTPH Gx	NWTPH Dx	Residual Chlorine (Y/N)
1	Trip Blank			2016		2016			4													
2	GW-120616-BP-MW-16		G	12/6	1225	12/6	1225		9										X	X	X	
3	GW-120616-BP-MW-14		G	12/6	1350	12/6	1330		9										X	X	X	
4	GW-120616-BP-MW-15		G	12/6	1400	12/6	1400		9										X	X	X	
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*SILICA GEL? YES NO	Brian Peters	12/6/16	1520	[signature] PACE	12/6/16	1575	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Appendix B
Laboratory Analytical Reports

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 05, 2016

Brian Peters
GHD Services, Inc.
20818 44th Avenue W
Suite 190
Lynnwood, WA 98036

RE: Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Dear Brian Peters:
Enclosed are the analytical results for sample(s) received by the laboratory on March 26, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Cloud, GHD Services Inc.

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10342735001	Trip Blank	Water	03/25/16 00:00	03/26/16 11:30
10342735002	GW-032516-BP-MW-16	Water	03/25/16 11:30	03/26/16 11:30
10342735003	GW-032516-BP-MW-14	Water	03/25/16 12:35	03/26/16 11:30
10342735004	GW-032516-BP-MW-15	Water	03/25/16 13:20	03/26/16 11:30

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SAMPLE ANALYTE COUNT

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10342735001	**Trip Blank**	NWTPH-Gx	KMZ	2	PASI-M
10342735002	**GW-032516-BP-MW-16**	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M
10342735003	**GW-032516-BP-MW-14**	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M
10342735004	**GW-032516-BP-MW-15**	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M

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PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Method: **NWTPH-Dx**
Description: NWTPH-Dx GCS LV
Client: GHD Services Inc
Date: April 05, 2016

General Information:
3 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510C with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/32922

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Method: **NWTPH-Gx**
Description: NWTPH-Gx GCV
Client: GHD Services Inc
Date: April 05, 2016

General Information:
4 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Method: **EPA 8260B**
Description: 8260B MSV UST
Client: GHD Services Inc
Date: April 05, 2016

General Information:
3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Sample: Trip Blank **Lab ID: 10342735001** Collected: 03/25/16 00:00 Received: 03/26/16 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		03/29/16 00:09		
Surrogates								
a,a,a-Trifluorotoluene (S)	92	%.	50-150	1		03/29/16 00:09	98-08-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Sample: GW-032516-BP-MW-16 **Lab ID: 10342735002** Collected: 03/25/16 11:30 Received: 03/26/16 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510C							
Diesel Fuel Range	ND	mg/L	0.38	1	03/28/16 11:37	03/30/16 14:00	68334-30-5	
Motor Oil Range	ND	mg/L	0.38	1	03/28/16 11:37	03/30/16 14:00		
Surrogates								
o-Terphenyl (S)	74	%.	50-150	1	03/28/16 11:37	03/30/16 14:00	84-15-1	
n-Triacontane (S)	90	%.	50-150	1	03/28/16 11:37	03/30/16 14:00	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		03/28/16 22:48		
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1		03/28/16 22:48	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		04/02/16 01:27	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/16 01:27	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/16 01:27	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/16 01:27	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	93	%.	75-125	1		04/02/16 01:27	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		04/02/16 01:27	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		04/02/16 01:27	460-00-4	

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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Sample: GW-032516-BP-MW-14 **Lab ID: 10342735003** Collected: 03/25/16 12:35 Received: 03/26/16 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510C							
Diesel Fuel Range	ND	mg/L	0.40	1	03/28/16 11:37	03/30/16 14:43	68334-30-5	
Motor Oil Range	ND	mg/L	0.40	1	03/28/16 11:37	03/30/16 14:43		
Surrogates								
o-Terphenyl (S)	72	%.	50-150	1	03/28/16 11:37	03/30/16 14:43	84-15-1	
n-Triacontane (S)	88	%.	50-150	1	03/28/16 11:37	03/30/16 14:43	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**1800**	ug/L	500	5		03/31/16 19:29		
Surrogates								
a,a,a-Trifluorotoluene (S)	100	%.	50-150	5		03/31/16 19:29	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		04/04/16 22:44	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/04/16 22:44	100-41-4	
Toluene	ND	ug/L	1.0	1		04/04/16 22:44	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/04/16 22:44	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%.	75-125	1		04/04/16 22:44	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		04/04/16 22:44	2037-26-5	
4-Bromofluorobenzene (S)	105	%.	75-125	1		04/04/16 22:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Sample: GW-032516-BP-MW-15 **Lab ID: 10342735004** Collected: 03/25/16 13:20 Received: 03/26/16 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510C							
Diesel Fuel Range	ND	mg/L	0.41	1	03/28/16 11:37	03/30/16 15:05	68334-30-5	
Motor Oil Range	ND	mg/L	0.41	1	03/28/16 11:37	03/30/16 15:05		
Surrogates								
o-Terphenyl (S)	72	%.	50-150	1	03/28/16 11:37	03/30/16 15:05	84-15-1	
n-Triacontane (S)	84	%.	50-150	1	03/28/16 11:37	03/30/16 15:05	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		03/28/16 22:08		
Surrogates								
a,a,a-Trifluorotoluene (S)	92	%.	50-150	1		03/28/16 22:08	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		04/02/16 01:44	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/02/16 01:44	100-41-4	
Toluene	ND	ug/L	1.0	1		04/02/16 01:44	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/02/16 01:44	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	93	%.	75-125	1		04/02/16 01:44	17060-07-0	
Toluene-d8 (S)	96	%.	75-125	1		04/02/16 01:44	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		04/02/16 01:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

QC Batch: GCV/15101 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10342735001, 10342735002, 10342735004

METHOD BLANK: 2218436 Matrix: Water
Associated Lab Samples: 10342735001, 10342735002, 10342735004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/28/16 20:26	
a,a,a-Trifluorotoluene (S)	%.	98	50-150	03/28/16 20:26	

METHOD BLANK: 2218439 Matrix: Water
Associated Lab Samples: 10342735001, 10342735002, 10342735004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/28/16 20:46	
a,a,a-Trifluorotoluene (S)	%.	88	50-150	03/28/16 20:46	

LABORATORY CONTROL SAMPLE & LCSD: 2218437 2218438

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	897	891	90	89	70-125	1	20	
a,a,a-Trifluorotoluene (S)	%.				106	105	50-150			

MATRIX SPIKE SAMPLE: 2218441

Parameter	Units	10342520011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
TPH as Gas	ug/L	127	1000	1070	94	46-149	
a,a,a-Trifluorotoluene (S)	%.				107	50-150	

SAMPLE DUPLICATE: 2218442

Parameter	Units	10342735004 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%.	92	92	0		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

QC Batch: GCV/15123
QC Batch Method: NWTPH-Gx
Analysis Method: NWTPH-Gx
Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10342735003

METHOD BLANK: 2221131 Matrix: Water
Associated Lab Samples: 10342735003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/31/16 18:26	
a,a,a-Trifluorotoluene (S)	%.	90	50-150	03/31/16 18:26	

METHOD BLANK: 2221134 Matrix: Water
Associated Lab Samples: 10342735003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/31/16 18:47	
a,a,a-Trifluorotoluene (S)	%.	93	50-150	03/31/16 18:47	

LABORATORY CONTROL SAMPLE & LCSD: 2221132 2221133

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	931	925	93	93	70-125	1	20	
a,a,a-Trifluorotoluene (S)	%.				109	100	50-150			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

QC Batch: MSV/35051 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10342735002, 10342735004

METHOD BLANK: 2220431 Matrix: Water
Associated Lab Samples: 10342735002, 10342735004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/01/16 20:36	
Ethylbenzene	ug/L	ND	1.0	04/01/16 20:36	
Toluene	ug/L	ND	1.0	04/01/16 20:36	
Xylene (Total)	ug/L	ND	3.0	04/01/16 20:36	
1,2-Dichloroethane-d4 (S)	%.	94	75-125	04/01/16 20:36	
4-Bromofluorobenzene (S)	%.	102	75-125	04/01/16 20:36	
Toluene-d8 (S)	%.	96	75-125	04/01/16 20:36	

LABORATORY CONTROL SAMPLE: 2220432

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.7	104	75-125	
Ethylbenzene	ug/L	20	20.8	104	75-125	
Toluene	ug/L	20	20.2	101	75-125	
Xylene (Total)	ug/L	60	63.7	106	75-125	
1,2-Dichloroethane-d4 (S)	%.			94	75-125	
4-Bromofluorobenzene (S)	%.			103	75-125	
Toluene-d8 (S)	%.			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2220708 2220709

Parameter	Units	10342696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	21.6	21.8	107	108	52-147	1	30	
Ethylbenzene	ug/L	ND	20	20	21.4	21.1	106	104	67-149	2	30	
Toluene	ug/L	ND	20	20	20.3	20.5	100	101	69-139	1	30	
Xylene (Total)	ug/L	ND	60	60	66.1	66.3	110	110	70-147	0	30	
1,2-Dichloroethane-d4 (S)	%.						96	97	75-125			
4-Bromofluorobenzene (S)	%.						103	103	75-125			
Toluene-d8 (S)	%.						97	99	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

QC Batch: MSV/35088
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10342735003

METHOD BLANK: 2223138
Matrix: Water
Associated Lab Samples: 10342735003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/04/16 14:18	
Ethylbenzene	ug/L	ND	1.0	04/04/16 14:18	
Toluene	ug/L	ND	1.0	04/04/16 14:18	
Xylene (Total)	ug/L	ND	3.0	04/04/16 14:18	
1,2-Dichloroethane-d4 (S)	%.	92	75-125	04/04/16 14:18	
4-Bromofluorobenzene (S)	%.	103	75-125	04/04/16 14:18	
Toluene-d8 (S)	%.	96	75-125	04/04/16 14:18	

LABORATORY CONTROL SAMPLE: 2223139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.4	97	75-125	
Ethylbenzene	ug/L	20	19.1	96	75-125	
Toluene	ug/L	20	18.3	92	75-125	
Xylene (Total)	ug/L	60	58.8	98	75-125	
1,2-Dichloroethane-d4 (S)	%.			95	75-125	
4-Bromofluorobenzene (S)	%.			104	75-125	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2223140 2223141

Parameter	Units	10343209002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	19.1	19.1	95	95	52-147	0	30	
Ethylbenzene	ug/L	ND	20	20	18.3	18.3	91	91	67-149	0	30	
Toluene	ug/L	ND	20	20	17.5	17.6	87	87	69-139	1	30	
Xylene (Total)	ug/L	ND	60	60	55.9	55.5	93	92	70-147	1	30	
1,2-Dichloroethane-d4 (S)	%.						95	96	75-125			
4-Bromofluorobenzene (S)	%.						103	102	75-125			
Toluene-d8 (S)	%.						98	98	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

QC Batch: OEXT/32922 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510C Analysis Description: NWTPH-Dx GCS LV
Associated Lab Samples: 10342735002, 10342735003, 10342735004

METHOD BLANK: 2218303 Matrix: Water
Associated Lab Samples: 10342735002, 10342735003, 10342735004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	ND	0.40	03/30/16 12:55	
Motor Oil Range	mg/L	ND	0.40	03/30/16 12:55	
n-Triacontane (S)	%.	87	50-150	03/30/16 12:55	
o-Terphenyl (S)	%.	76	50-150	03/30/16 12:55	

LABORATORY CONTROL SAMPLE & LCSD: 2218304 2218305

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range	mg/L	2	1.5	1.7	74	85	50-150	14	20	
Motor Oil Range	mg/L	2	1.6	1.8	78	89	50-150	14	20	
n-Triacontane (S)	%.				80	87	50-150			
o-Terphenyl (S)	%.				75	88	50-150			

SAMPLE DUPLICATE: 2218306

Parameter	Units	10342735002 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range	mg/L	ND	.072J		30	
Motor Oil Range	mg/L	ND	ND		30	
n-Triacontane (S)	%.	90	83	8		
o-Terphenyl (S)	%.	74	73	3		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: GCSV/18182

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

METHOD CROSS REFERENCE TABLE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV UST	Water	SW-846 8260B/5030B	N/A

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 10342735

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10342735002	**GW-032516-BP-MW-16**	EPA 3510C	OEXT/32922	NWTPH-Dx	GCSV/18182
10342735003	**GW-032516-BP-MW-14**	EPA 3510C	OEXT/32922	NWTPH-Dx	GCSV/18182
10342735004	**GW-032516-BP-MW-15**	EPA 3510C	OEXT/32922	NWTPH-Dx	GCSV/18182
10342735001	**Trip Blank**	NWTPH-Gx	GCV/15101		
10342735002	**GW-032516-BP-MW-16**	NWTPH-Gx	GCV/15101		
10342735003	**GW-032516-BP-MW-14**	NWTPH-Gx	GCV/15123		
10342735004	**GW-032516-BP-MW-15**	NWTPH-Gx	GCV/15101		
10342735002	**GW-032516-BP-MW-16**	EPA 8260B	MSV/35051		
10342735003	**GW-032516-BP-MW-14**	EPA 8260B	MSV/35088		
10342735004	**GW-032516-BP-MW-15**	EPA 8260B	MSV/35051		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10347735

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036			Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Purchase Order No.		Pace Quote Reference:	
Phone:	Fax:	Client Project ID:	062308-2016-**** JFS Maple Valley Hwy	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)	Container Order Number:		Pace Profile #:	35119 #1

Regulatory Agency: | State / Location: WA / Maple Valley

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample Ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM#	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Requested Analysis Filtered (Y/N): BTEX by 8260	NWTPHGx	NWTPHDx	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	OT	G						4				4						X	X			001
2	GW-032516-BP-MW-16	WT	G	3/25	1130	3/25	1130		8				8						X	X	X		002
3	GW-032516-BP-MW-14	WT	G	3/25	12:35	3/25	12:35		8				8						X	X	X		003
4	GW-032516-BP-MW-15	WT	G	3/25	1320	3/25	1320		8				8						X	X	X		004
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Brian Peters	3/25/16	15:05	Jenni Gross / Pace	3/25/16	15:05	4.3	Y	N	Y
	Jenni Gross / Pace	3/25/16	15:10	Pace	3/26/16	1130	3.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

Pace Analytical	Document Name: Cooler Transfer Check List	Revised Date: 23Apr2013 Page 1 of 1
	Document Number: F-MN-C-120-rev.01	Issuing Authority: Pace Minnesota Quality Office

Cooler Transfer Check List

Client: GHD

Project Manager: Jenni Gross

Profile/Line #: 35119 / 1

Received with Custody Seal: Yes (No)

Custody Seal Intact: Yes No (NA)

	Temp Read	Corrected Temp	Correction Factor
Temperature C:	4.3	4.3	Ø

IR Gun # (IR1) IR2

☐ Samples on ice, cooling process has begun

Rush/Short Hold: NO

Containers Intact: (Yes) No

Re-packed and Re-Iced: ✓

Temp Blank Included: (Yes) No

Shipped By/Date: UPS 3/25/16

Notes:

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 05Jan2016 Page 1 of 1
	Document No.: F-MN-L-213-rev.15	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: OHD

Project #: WO# : 10342735

10342735

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:

Tracking Number: 6602 9805 4141

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☐ 151401163 ☐ B88A912167504 ☑ 151401164 ☐ B88A0143310098 **Type of Ice:** ☐ Wet ☐ Blue ☐ None ☐ Samples on Ice, cooling process has begun

Cooler Temp Read (°C): 3.2 **Cooler Temp Corrected (°C):** 3.2 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.0 **Date and Initials of Person Examining Contents:** MH 3/26/16

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: W	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☑ Yes	☐ No	☐ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☐ N/A	14.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (If purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☒ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: **Date:** 03/28/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

July 20, 2016

Brian Peters
GHD Services
20818 44th Avenue W
Suite 190
Lynnwood, WA 98036

RE: Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Dear Brian Peters:
Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Cloud, GHD Services, Inc
Steve Rasmussen, GHD Services, Inc.

Pace Analytical Services, Inc.
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Davis, CA 95618
(530) 297-4800

CERTIFICATIONS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Davis Cerification IDs

2795 Second Street Suite 300 Davis, CA 95618
North Dakota Certification #: R-214
Oregon Certification #: CA300002
Washington Certification #: C926-15a
California Certification #: 08263CA
Minnesota Department of Health Certification #: 006-999-465

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

SAMPLE SUMMARY

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1270320001	Trip Blank	Water	07/11/16 00:00	07/13/16 09:35
1270320002	GW-062308-BP-MW-16	Water	07/11/16 14:25	07/13/16 09:35
1270320003	GW-062308-BP-MW-14	Water	07/11/16 15:05	07/13/16 09:35
1270320004	GW-062308-BP-MW-15	Water	07/11/16 15:45	07/13/16 09:35

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SAMPLE ANALYTE COUNT

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1270320002	GW-062308-BP-MW-16	NWTPH-Dx	DRM	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV
1270320003	GW-062308-BP-MW-14	NWTPH-Dx	DRM	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV
1270320004	GW-062308-BP-MW-15	NWTPH-Dx	DRM	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV

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PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Method: **NWTPH-Dx**
Description: NWTPH-Dx GCS Water
Client: GHD Services Inc.
Date: July 20, 2016

General Information:
3 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
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(530) 297-4800

PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Method: EPA 8260B
Description: 8260 MSV UST Water
Client: GHD Services Inc.
Date: July 20, 2016

General Information:
3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
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Davis, CA 95618
(530) 297-4800

PROJECT NARRATIVE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Method: **NWTPH-Gx**
Description: NWTPH-Gx MSV Water
Client: GHD Services Inc.
Date: July 20, 2016

General Information:
3 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 88273

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 1270320003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 346332)
  - TPH as Gas
- MSD (Lab ID: 346333)
  - TPH as Gas

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Sample: GW-062308-BP-MW-16 **Lab ID: 1270320002** Collected: 07/11/16 14:25 Received: 07/13/16 09:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Fuel Range	**0.29**	mg/L	0.18	1	07/15/16 13:58	07/15/16 17:07		DE
Motor Oil Range	ND	mg/L	0.28	1	07/15/16 13:58	07/15/16 17:07		
Surrogates								
n-Octacosane (S)	114	%.	50-150	1	07/15/16 13:58	07/15/16 17:07	630-02-4	
8260 MSV UST Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		07/18/16 16:01	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:01	100-41-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:01	108-88-3	
Xylene (Total)	ND	ug/L	1.5	1		07/18/16 16:01	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		07/18/16 16:01	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		07/18/16 16:01	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	70-130	1		07/18/16 16:01	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	250	1		07/19/16 20:15		
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	50-150	1		07/19/16 20:15	17060-07-0	
Toluene-d8 (S)	98	%.	50-150	1		07/19/16 20:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	50-150	1		07/19/16 20:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Sample: GW-062308-BP-MW-14 **Lab ID: 1270320003** Collected: 07/11/16 15:05 Received: 07/13/16 09:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Fuel Range	**0.45**	mg/L	0.18	1	07/15/16 13:58	07/15/16 15:22		DG
Motor Oil Range	ND	mg/L	0.27	1	07/15/16 13:58	07/15/16 15:22		
Surrogates								
n-Octacosane (S)	96	%.	50-150	1	07/15/16 13:58	07/15/16 15:22	630-02-4	
8260 MSV UST Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		07/18/16 16:20	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:20	100-41-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:20	108-88-3	
Xylene (Total)	ND	ug/L	1.5	1		07/18/16 16:20	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	70-130	1		07/18/16 16:20	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		07/18/16 16:20	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	70-130	1		07/18/16 16:20	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	**1330**	ug/L	250	1		07/19/16 18:39		M1
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	50-150	1		07/19/16 18:39	17060-07-0	
Toluene-d8 (S)	99	%.	50-150	1		07/19/16 18:39	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	50-150	1		07/19/16 18:39	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

ANALYTICAL RESULTS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Sample: GW-062308-BP-MW-15 **Lab ID: 1270320004** Collected: 07/11/16 15:45 Received: 07/13/16 09:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: EPA 3510							
Diesel Fuel Range	ND	mg/L	0.18	1	07/15/16 13:58	07/15/16 17:42		
Motor Oil Range	ND	mg/L	0.27	1	07/15/16 13:58	07/15/16 17:42		
Surrogates								
n-Octacosane (S)	92	%.	50-150	1	07/15/16 13:58	07/15/16 17:42	630-02-4	
8260 MSV UST Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		07/18/16 16:39	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:39	100-41-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:39	108-88-3	
Xylene (Total)	ND	ug/L	1.5	1		07/18/16 16:39	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		07/18/16 16:39	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		07/18/16 16:39	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	70-130	1		07/18/16 16:39	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	250	1		07/19/16 20:34		
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	50-150	1		07/19/16 20:34	17060-07-0	
Toluene-d8 (S)	98	%.	50-150	1		07/19/16 20:34	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	50-150	1		07/19/16 20:34	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

QC Batch: 87984 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

METHOD BLANK: 344989 Matrix: Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	ND	0.20	07/15/16 14:40	
Motor Oil Range	mg/L	ND	0.30	07/15/16 14:40	
n-Octacosane (S)	%.	94	50-150	07/15/16 14:40	

LABORATORY CONTROL SAMPLE: 344990

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel Range	mg/L	1.2	1.4	114	70-130	
n-Octacosane (S)	%.			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 344991 344992

Parameter	Units	1270320003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel Range	mg/L	0.45	1.1	1.1	1.4	1.1	88	57	70-130	27	25	M1
n-Octacosane (S)	%.						104	104	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(530) 297-4800

QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

QC Batch: 88082 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV UST Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

METHOD BLANK: 345387 Matrix: Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	0.50	07/18/16 11:11	
Ethylbenzene	ug/L	ND	0.50	07/18/16 11:11	
Toluene	ug/L	ND	0.50	07/18/16 11:11	
Xylene (Total)	ug/L	ND	1.5	07/18/16 11:11	
1,2-Dichloroethane-d4 (S)	%.	108	70-130	07/18/16 11:11	
4-Bromofluorobenzene (S)	%.	100	70-130	07/18/16 11:11	
Toluene-d8 (S)	%.	98	70-130	07/18/16 11:11	

LABORATORY CONTROL SAMPLE: 345388

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	40	33.4	83	75-125	
Ethylbenzene	ug/L	40	37.5	94	75-125	
Toluene	ug/L	40	35.4	89	75-125	
Xylene (Total)	ug/L	120	114	95	75-125	
1,2-Dichloroethane-d4 (S)	%.			106	70-130	
4-Bromofluorobenzene (S)	%.			100	70-130	
Toluene-d8 (S)	%.			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 345389 345390

Parameter	Units	1270208001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	40	40	35.4	35.0	89	87	75-125	1	30	
Ethylbenzene	ug/L	ND	40	40	39.7	39.2	99	98	74-125	1	30	
Toluene	ug/L	ND	40	40	37.5	37.0	93	92	75-125	1	30	
Xylene (Total)	ug/L	ND	120	120	121	118	101	99	61-129	2	30	
1,2-Dichloroethane-d4 (S)	%.						107	107	70-130			
4-Bromofluorobenzene (S)	%.						101	101	70-130			
Toluene-d8 (S)	%.						97	97	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Davis, CA 95618
(530) 297-4800

QUALITY CONTROL DATA

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

QC Batch: 88273 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx MSV Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

METHOD BLANK: 346330 Matrix: Water
Associated Lab Samples: 1270320002, 1270320003, 1270320004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	250	07/19/16 18:20	
1,2-Dichloroethane-d4 (S)	%.	108	50-150	07/19/16 18:20	
4-Bromofluorobenzene (S)	%.	98	50-150	07/19/16 18:20	
Toluene-d8 (S)	%.	98	50-150	07/19/16 18:20	

LABORATORY CONTROL SAMPLE: 346331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH as Gas	ug/L	480	531	111	70-130	
1,2-Dichloroethane-d4 (S)	%.			108	50-150	
4-Bromofluorobenzene (S)	%.			100	50-150	
Toluene-d8 (S)	%.			98	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 346332 346333

Parameter	Units	1270320003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	1330	480	480	2250	2210	193	184	70-130	2	25	M1
1,2-Dichloroethane-d4 (S)	%.						110	109	50-150			
4-Bromofluorobenzene (S)	%.						100	100	50-150			
Toluene-d8 (S)	%.						99	99	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

QUALIFIERS

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV Pace Analytical Services - Davis

ANALYTE QUALIFIERS

DE	Discrete peaks present, atypical for Diesel Fuel.
DG	Lower boiling hydrocarbons present, atypical for Diesel Fuel.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 062308-2016-**** Maple Valley
Pace Project No.: 1270320

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1270320002	GW-062308-BP-MW-16	EPA 3510	87984	NWTPH-Dx	88002
1270320003	GW-062308-BP-MW-14	EPA 3510	87984	NWTPH-Dx	88002
1270320004	GW-062308-BP-MW-15	EPA 3510	87984	NWTPH-Dx	88002
1270320002	GW-062308-BP-MW-16	EPA 8260B	88082		
1270320003	GW-062308-BP-MW-14	EPA 8260B	88082		
1270320004	GW-062308-BP-MW-15	EPA 8260B	88082		
1270320002	GW-062308-BP-MW-16	NWTPH-Gx	88273		
1270320003	GW-062308-BP-MW-14	NWTPH-Gx	88273		
1270320004	GW-062308-BP-MW-15	NWTPH-Gx	88273		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036	Purchase Order No.	4077615	Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Client Project ID:	RAS # 062308	Pace Quote Reference:	
Phone:	Fax	Container Order Number:	062308	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)			Pace Profile #:	4825 / 2

Regulatory Agency

State / Location: WA / Fife

Requested Analysis Filtered (Y/N)

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: BTEX by 8260	NWTPHGx	NWTPHDx	Residual Chlorine (Y/N)	1270320
1	Trip Blank	OT	G	2016 7/11	1425	7/11	1425		4				4						X				001
2	GW-062308-BP-MW-16			7/11	1425	7/11	1425		9				9						X	X	X		002
3	GW-062308-BP-MW-14			7/11	1505	7/11	1505		9				9						X	X	X		003
4	GW-062308-BP-MW-15		↓	7/11	1545	7/11	1545		9				9						X	X	X		004
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

BP DP BP

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
B	Brian Parley	7/11/16	1840		7/12/16	1100	4°	C	Y	Y
		7/12/16	1700	PACE DAVIS	07/13/16	0935	2.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

site - 062308
21641 Maple Valley Hwy
Maple Valley, WA

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 25Feb2015 Page 1 of 1
	Document No.: F-DAV-C-002-rev.02	Issuing Authority: Pace Davis, CA Quality Office

Sample Condition Upon Receipt

Client Name: GHD

Project #: WO# : 1270320

1270320

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client

Commercial [ ] Pace [ ] OnTrac [ ] Other:

Tracking Number: 6662 9805 9305

Custody Seal on Cooler/Box Present? [X] Yes [ ] No Seals Intact? [X] Yes [ ] No

Optional: Proj. Due Date: Proj. Name:

Packing Material: [ ] Bubble Wrap [X] Bubble Bags [ ] None [ ] Other: Temp Blank? [ ] Yes [X] No

Thermom. Used: [X] DA1434 [ ] DA2285 Type of Ice: [ ] Wet [ ] Blue [ ] Dry Ice [ ] None [ ] Samples on ice, cooling process has begun

Cooler Temp Read(°C): 1.2 Cooler Temp Corrected(°C): 2.2 Biological Tissue Frozen? [ ] Yes [ ] No [X] N/A

Temp should be above freezing to 6°C Correction Factor: +1.0 Date and Initials of Person Examining Contents: CAR 071316

				Comments:
Chain of Custody Present?	[X] Yes	[ ] No	[ ] N/A	1. Sample -001, Trip Blank
Chain of Custody Filled Out?	[X] Yes	[ ] No	[ ] N/A	2. will be logged in as Hold.
Chain of Custody Relinquished?	[X] Yes	[ ] No	[ ] N/A	3. The sample date and time
Sampler Name and/or Signature on COC?	[X] Yes	[ ] No	[ ] N/A	4. will be logged in as the
Samples Arrived within Hold Time?	[X] Yes	[ ] No	[ ] N/A	5. relinquished date/time
Short Hold Time Analysis (<72 hr)?	[ ] Yes	[X] No	[ ] N/A	6. on the COC until further
Rush Turn Around Time Requested?	[ ] Yes	[X] No	[ ] N/A	7. clarification from PM. eg 071316
Sufficient Volume?	[X] Yes	[ ] No	[ ] N/A	8.
Correct Containers Used?	[X] Yes	[ ] No	[ ] N/A	9.
-Pace Containers Used?	[X] Yes	[ ] No	[ ] N/A	
Containers Intact?	[X] Yes	[ ] No	[ ] N/A	10.
Filtered Volume Received for Dissolved Tests?	[ ] Yes	[ ] No	[X] N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	[X] Yes	[ ] No	[ ] N/A	12.
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[X] N/A	13. [ ] HNO_3 [ ] H_2SO_4 [ ] NaOH [ ] HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	[ ] Yes	[ ] No	[X] N/A	Sample #
	[X] Yes	[ ] No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	[ ] Yes	[X] No	[ ] N/A	14.
Trip Blank Present?	[X] Yes	[ ] No	[ ] N/A	15.
Trip Blank Custody Seals Present?	[ ] Yes	[X] No	[ ] N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? [ ] Yes [X] No

Person Contacted: Brian Pauley Date/Time: 07/13/16 16:20 (in Person)

Comments/Resolution: No silica gel required for JFS sites.

Project Manager Review: Jenni Gross Date: 07/13/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 1270320

PM: JMG Due Date: 07/27/16

CLIENT: 19-GHD_NA

Pace Analytical	Document Name: Sample Container Count	Document Revised: 24 Page 1 of 1
	Document No.: F-DAV-C-008-Rev.00	Issuing Authority: Pace Davis Quality Office

Client: GHD Project #: _____ COC ID: _____ COC Page: 1 of 1

Sample Line Item	BP1U	BP2U	BP3U	BP3S	BP3N	AG1U	AG1H	AG3S	AGIT	JGFU	JGCU	BJFU	WPDU	VG9M	VG9H	GN	SP5T	DWC
☐	Check the box to the left to indicate that the container(s) received for line items _____ are identical to the container(s) documented for line item 1 for this CoC.																	
1															4			
2															9			
3															↓			
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Comments: _____

Container Codes:

AG1H	1 L amber glass HCl	BP1N	1 L plastic HNO3	DG9C	40 mL vial with ascorbic acid	VG9B	40 mL clear VOA vial Na Bisulfate
AG1S	1 L amber glass H2SO4	BP1S	1 L plastic H2SO4	DG9T	40 mL amber VOA vial Na Thio	VG9H	40 mL clear VOA vial HCl
AG1T	1 L amber glass Na Thiosulfate	BP1U	1 L plastic unpreserved	DG9U	40 mL amber VOA vial	VG9M	40 mL clear VOA vial MeOH
AG1U	1 L amber glass unpreserved	BP1Z	1 L plastic NaOH, Zn Ac	DWC	Dry weight container	VG9S	40 mL clear VOA vial H2SO4
AG2H	500 mL amber glass HCl	BP2A	500 mL plastic NaOH	EZH	25 g Encore	VG9T	40 mL clear VOA vial Na Thiosulfate
AG2N	500 mL amber glass HNO3	BP2N	500 mL plastic HNO3	GJ	1 Gallon jug	VG9U	40 mL clear VOA vial
AG2S	500 mL amber glass H2SO4	BP2S	500 mL plastic H2SO4	GN	General unpreserved	VG9W	40 mL clear VOA vial DI Water/stir bar
AG2U	500 mL amber unpreserved	BP2U	500 mL plastic unpreserved	GNN	General preserved with Nitric Acid	VSG	Headspace septa vial and HCl
AG3H	250 mL amber glass HCl	BP2Z	500 mL NaOH, Zn Ac	GNS	General with H_2SO_4	WGFX	4 oz wide jar and wipe Hexane
AG3S	250 mL amber glass H2SO4	BP3A	250 mL plastic NaOH, Asc Acid	JGCU	8 oz clear wide jar	WPDU	16 oz clear wide mouth jar
AG3U	250 mL amber glass unpreserved	BP3N	250 mL plastic HNO3	JGFM	4 oz amber wide jar MeOH	XAD	XAD trap
AG4S	120 mL amber glass H2SO4	BP3S	250 mL plastic H2SO4	JGFU	4 oz wide jar		
AG4U	125 mL amber glass unpreserved	BP3U	250 mL plastic unpreserved	PB	Clear zip-lock bag		
BJFM	4 oz clear jar MeOH	BP3Z	250 mL plastic NaOH, Zn Ac	PUF	Polyurethane Foam		
BJFU	4 oz amber tared weight	BP4N	125 mL plastic HNO3	SP5T	120 mL Coliform NA Thiosulfate		
BJTM	2 oz clear MeOH	BP4U	125 mL plastic unpreserved	T	Tedlar Bag		
BJTU	2 oz clear wide jar	C	Air Cassettes	TDT	Thermal desorption tube		
BP1A	1 L plastic NaOH	DG9H	40 mL amber VOA vial HCl	U	Summa Can		

Pace Analytical Services, LLC
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

October 11, 2016

Brian Peters
GHD Services
20818 44th Avenue W
Suite 190
Lynnwood, WA 98036

RE: Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Dear Brian Peters:
Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Cloud, GHD Services, Inc

Pace Analytical Services, LLC
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

CERTIFICATIONS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Davis Cerification IDs
2795 Second Street Suite 300 Davis, CA 95618
North Dakota Certification #: R-214
Oregon Certification #: CA300002
Washington Certification #: C926-15a
California Certification #: 08263CA
Minnesota Department of Health Certification #: 006-999-465

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

SAMPLE SUMMARY

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1276044001	**Trip blank**	Water	09/29/16 00:00	09/30/16 10:00
1276044002	**GW-062308-092916-BP-MW-16**	Water	09/29/16 12:25	09/30/16 10:00
1276044003	**GW-062308-092916-BP-MW-14**	Water	09/29/16 13:10	09/30/16 10:00
1276044004	**GW-062308-092916-BP-MW-15**	Water	09/29/16 13:55	09/30/16 10:00

Pace Analytical Services, LLC
2795 Second Street - Suite 300
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(530) 297-4800

SAMPLE ANALYTE COUNT

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1276044001	Trip blank	NWTPH-Dx	CCB	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV
1276044002	GW-062308-092916-BP-MW-16	NWTPH-Dx	CCB	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV
1276044003	GW-062308-092916-BP-MW-14	NWTPH-Dx	CCB	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV
1276044004	GW-062308-092916-BP-MW-15	NWTPH-Dx	CCB	3	PASI-DAV
		EPA 8260B	JCP	7	PASI-DAV
		NWTPH-Gx	JCP	4	PASI-DAV

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Method: **NWTPH-Dx**
Description: NWTPH-Dx GCS Water
Client: GHD Services Inc.
Date: October 11, 2016

General Information:
4 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with NWTPH-Dx with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Method: **EPA 8260B**
Description: 8260 MSV Med Water
Client: GHD Services Inc.
Date: October 11, 2016

General Information:
4 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Method: **NWTPH-Gx**
Description: NWTPH-Gx MSV Water
Client: GHD Services Inc.
Date: October 11, 2016

General Information:
4 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Sample: Trip blank **Lab ID: 1276044001** Collected: 09/29/16 00:00 Received: 09/30/16 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: NWTPH-Dx							
Diesel Fuel Range	ND	mg/L	0.18	1	10/07/16 07:14	10/09/16 14:00		DG
Motor Oil Range	ND	mg/L	0.27	1	10/07/16 07:14	10/09/16 14:00		
Surrogates								
n-Octacosane (S)	113	%.	50-150	1	10/07/16 07:14	10/09/16 14:00	630-02-4	
8260 MSV Med Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		10/04/16 12:22	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		10/04/16 12:22	100-41-4	
Toluene	ND	ug/L	0.50	1		10/04/16 12:22	108-88-3	
Xylene (Total)	ND	ug/L	1.5	1		10/04/16 12:22	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	70-130	1		10/04/16 12:22	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		10/04/16 12:22	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	70-130	1		10/04/16 12:22	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	250	1		10/04/16 12:22		
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	50-150	1		10/04/16 12:22	17060-07-0	
Toluene-d8 (S)	101	%.	50-150	1		10/04/16 12:22	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	50-150	1		10/04/16 12:22	460-00-4	

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Sample: GW-062308-092916-BP-MW-16 **Lab ID: 1276044002** Collected: 09/29/16 12:25 Received: 09/30/16 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: NWTPH-Dx							
Diesel Fuel Range	ND	mg/L	0.18	1	10/07/16 07:14	10/09/16 14:31		
Motor Oil Range	ND	mg/L	0.28	1	10/07/16 07:14	10/09/16 14:31		
Surrogates								
n-Octacosane (S)	112	%.	50-150	1	10/07/16 07:14	10/09/16 14:31	630-02-4	
8260 MSV Med Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		10/04/16 14:36	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		10/04/16 14:36	100-41-4	
Toluene	ND	ug/L	0.50	1		10/04/16 14:36	108-88-3	
Xylene (Total)	ND	ug/L	1.5	1		10/04/16 14:36	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	70-130	1		10/04/16 14:36	17060-07-0	
Toluene-d8 (S)	102	%.	70-130	1		10/04/16 14:36	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	70-130	1		10/04/16 14:36	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	250	1		10/04/16 10:07		
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	50-150	1		10/04/16 10:07	17060-07-0	
Toluene-d8 (S)	102	%.	50-150	1		10/04/16 10:07	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	50-150	1		10/04/16 10:07	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Sample: GW-062308-092916-BP-MW-14 **Lab ID: 1276044003** Collected: 09/29/16 13:10 Received: 09/30/16 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: NWTPH-Dx							
Diesel Fuel Range	**0.49**	mg/L	0.18	1	10/07/16 07:14	10/09/16 15:02		DG
Motor Oil Range	**0.28**	mg/L	0.27	1	10/07/16 07:14	10/09/16 15:02		
Surrogates								
n-Octacosane (S)	116	%.	50-150	1	10/07/16 07:14	10/09/16 15:02	630-02-4	
8260 MSV Med Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		10/04/16 14:56	71-43-2	
Toluene	ND	ug/L	0.50	1		10/04/16 14:56	108-88-3	
Ethylbenzene	ND	ug/L	0.50	1		10/04/16 14:56	100-41-4	
Xylene (Total)	ND	ug/L	1.5	1		10/04/16 14:56	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	70-130	1		10/04/16 14:56	17060-07-0	
Toluene-d8 (S)	102	%.	70-130	1		10/04/16 14:56	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	70-130	1		10/04/16 14:56	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	**799**	ug/L	250	1		10/04/16 14:56		
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	50-150	1		10/04/16 14:56	17060-07-0	
Toluene-d8 (S)	102	%.	50-150	1		10/04/16 14:56	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	50-150	1		10/04/16 14:56	460-00-4	

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Sample: GW-062308-092916-BP-MW-15 **Lab ID: 1276044004** Collected: 09/29/16 13:55 Received: 09/30/16 10:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Water	Analytical Method: NWTPH-Dx Preparation Method: NWTPH-Dx							
Diesel Fuel Range	ND	mg/L	0.19	1	10/07/16 07:14	10/09/16 15:34		DG
Motor Oil Range	ND	mg/L	0.28	1	10/07/16 07:14	10/09/16 15:34		
Surrogates								
n-Octacosane (S)	108	%.	50-150	1	10/07/16 07:14	10/09/16 15:34	630-02-4	
8260 MSV Med Water	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		10/04/16 15:15	71-43-2	
Toluene	ND	ug/L	0.50	1		10/04/16 15:15	108-88-3	
Ethylbenzene	ND	ug/L	0.50	1		10/04/16 15:15	100-41-4	
Xylene (Total)	ND	ug/L	1.5	1		10/04/16 15:15	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	70-130	1		10/04/16 15:15	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		10/04/16 15:15	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	70-130	1		10/04/16 15:15	460-00-4	
NWTPH-Gx MSV Water	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	250	1		10/04/16 15:15		
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	50-150	1		10/04/16 15:15	17060-07-0	
Toluene-d8 (S)	101	%.	50-150	1		10/04/16 15:15	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	50-150	1		10/04/16 15:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

QC Batch: 96589 Analysis Method: NWTPH-Dx
QC Batch Method: NWTPH-Dx Analysis Description: NWTPH-Dx GCS Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

METHOD BLANK: 381271 Matrix: Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	ND	0.20	10/09/16 08:49	
Motor Oil Range	mg/L	ND	0.30	10/09/16 08:49	
n-Octacosane (S)	%.	110	50-150	10/09/16 08:49	

LABORATORY CONTROL SAMPLE: 381272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel Range	mg/L	1.2	1.1	95	70-130	
n-Octacosane (S)	%.			105	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 381273 381274

Parameter	Units	1275928001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel Range	mg/L	0.43	1.1	1.1	1.4	1.7	84	109	70-130	19	25	
n-Octacosane (S)	%.						114	126	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

QC Batch: 96158 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

METHOD BLANK: 378972 Matrix: Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	0.50	10/04/16 09:26	
Ethylbenzene	ug/L	ND	0.50	10/04/16 09:26	
Toluene	ug/L	ND	0.50	10/04/16 09:26	
Xylene (Total)	ug/L	ND	1.5	10/04/16 09:26	
1,2-Dichloroethane-d4 (S)	%.	103	70-130	10/04/16 09:26	
4-Bromofluorobenzene (S)	%.	96	70-130	10/04/16 09:26	
Toluene-d8 (S)	%.	102	70-130	10/04/16 09:26	

LABORATORY CONTROL SAMPLE: 378973

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	40	39.9	100	75-125	
Ethylbenzene	ug/L	40	40.4	101	75-125	
Toluene	ug/L	40	39.4	98	75-125	
Xylene (Total)	ug/L	120	119	99	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	70-130	
4-Bromofluorobenzene (S)	%.			100	70-130	
Toluene-d8 (S)	%.			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 378974 378975

Parameter	Units	1275903005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	40	40	40.7	39.8	101	98	75-125	2	30	
Ethylbenzene	ug/L	ND	40	40	40.8	40.0	102	100	74-125	2	30	
Toluene	ug/L	ND	40	40	39.7	38.9	99	97	75-125	2	30	
Xylene (Total)	ug/L	ND	120	120	121	118	101	98	61-129	2	30	
1,2-Dichloroethane-d4 (S)	%.						101	100	70-130			
4-Bromofluorobenzene (S)	%.						100	99	70-130			
Toluene-d8 (S)	%.						102	101	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

QC Batch: 96157 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx MSV Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

METHOD BLANK: 378968 Matrix: Water
Associated Lab Samples: 1276044001, 1276044002, 1276044003, 1276044004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	250	10/04/16 09:26	
1,2-Dichloroethane-d4 (S)	%.	103	50-150	10/04/16 09:26	
4-Bromofluorobenzene (S)	%.	96	50-150	10/04/16 09:26	
Toluene-d8 (S)	%.	102	50-150	10/04/16 09:26	

LABORATORY CONTROL SAMPLE: 378969

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH as Gas	ug/L	520	529	102	70-130	
1,2-Dichloroethane-d4 (S)	%.			102	50-150	
4-Bromofluorobenzene (S)	%.			100	50-150	
Toluene-d8 (S)	%.			103	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 378970 378971

Parameter	Units	1276044002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	ND	520	520	544	536	104	103	70-130	1	25	
1,2-Dichloroethane-d4 (S)	%.						103	102	50-150			
4-Bromofluorobenzene (S)	%.						100	99	50-150			
Toluene-d8 (S)	%.						103	102	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV Pace Analytical Services - Davis

ANALYTE QUALIFIERS

DG Lower boiling hydrocarbons present, atypical for Diesel Fuel.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 1276044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1276044001	Trip blank	NWTPH-Dx	96589	NWTPH-Dx	96686
1276044002	GW-062308-092916-BP-MW-16	NWTPH-Dx	96589	NWTPH-Dx	96686
1276044003	GW-062308-092916-BP-MW-14	NWTPH-Dx	96589	NWTPH-Dx	96686
1276044004	GW-062308-092916-BP-MW-15	NWTPH-Dx	96589	NWTPH-Dx	96686
1276044001	Trip blank	EPA 8260B	96158		
1276044002	GW-062308-092916-BP-MW-16	EPA 8260B	96158		
1276044003	GW-062308-092916-BP-MW-14	EPA 8260B	96158		
1276044004	GW-062308-092916-BP-MW-15	EPA 8260B	96158		
1276044001	Trip blank	NWTPH-Gx	96157		
1276044002	GW-062308-092916-BP-MW-16	NWTPH-Gx	96157		
1276044003	GW-062308-092916-BP-MW-14	NWTPH-Gx	96157		
1276044004	GW-062308-092916-BP-MW-15	NWTPH-Gx	96157		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD Services	Report To:	Brian Pauley	Attention:	
Address:	20818 44th Ave W	Copy To:		Company Name:	
	Lynnwood, WA 98036			Address:	
Email:		Purchase Order #:		Pace Quote:	
Phone:	Fax:	Project Name:	062308-2016 JFS Maple Valley Hwy	Pace Project Manager:	jennifer.gross@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	4825 / 2

WA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: BTEX by 8260	NWTPHGx	Trip BLANK	NWTPH-DX	Residual Chlorine (Y/N)	1276044
1	Trip blank	~~WT~~	~~G~~	~~9/29/2016~~	~~1125~~				4									X	X		X		001
2	GW-062308-092916-BP-MW-16		G	9/29	1225	9/29	1225		9									X	X		X		002
3	GW-062308-092916-BP-MW-14		G	9/29	1310	9/29	1310		9									X	X		X		003
4	GW-062308-092916-BP-MW-5		G	9/29	1355	9/29	1355		9									X	X		X		004
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Brian Pauley/GHD	9/29/16	1545	[signature] PACE	9/29/16	1545	3.4	Y	N	Y
	[signature]	9/29/16	1600	[signature] PACE Analytical	9/30/16	1000	3.7	Y	Y	Y

PRINT Name of SAMPLER: Brian Pauley

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9/29/16

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 25Feb2015 Page 1 of 1
	Document No.: F-DAV-C-002-rev.02	Issuing Authority: Pace Davis, CA Quality Office

Sample Condition Upon Receipt **Client Name:** GHD **Project #:** WO#: 1276044

Courier: ☒Fed Ex ☐UPS ☐USPS ☐Client ☐Commercial ☐Pace ☐OnTrac ☐Other:

Tracking Number: 7021455 1938

Custody Seal on Cooler/Box Present? ☒Yes ☐No **Seals Intact?** ☒Yes ☐No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☐Bubble Wrap ☒Bubble Bags ☐None ☐Other: **Temp Blank?** ☐Yes ☒No

Thermom. Used: ☒DA1434 ☐DA2285 **Type of Ice:** ☒Wet ☐Blue ☐Dry Ice ☐None ☐Samples on ice, cooling process has begun

Cooler Temp Read(°C): 3.2 **Cooler Temp Corrected(°C):** 3.7 **Biological Tissue Frozen?** ☐Yes ☐No ☒N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.5 **Date and Initials of Person Examining Contents:** cmj 093016

Chain of Custody Present?	☒Yes	☐No	☐N/A	1.
Chain of Custody Filled Out?	☒Yes	☐No	☐N/A	2.
Chain of Custody Relinquished?	☒Yes	☐No	☐N/A	3.
Sampler Name and/or Signature on COC?	☒Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time?	☒Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72 hr)?	☐Yes	☒No	☐N/A	6.
Rush Turn Around Time Requested?	☐Yes	☒No	☒N/A 093016	7.
Sufficient Volume?	☒Yes	☐No	☐N/A	8.
Correct Containers Used?	☒Yes	☐No	☐N/A	9.
-Pace Containers Used?	☒Yes	☐No	☐N/A	
Containers Intact?	☒Yes	☐No	☐N/A	10.
Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☒N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☒Yes	☐No	☐N/A	12.
All containers needing acid/base preservation have been checked?	☐Yes	☒No	☐N/A	13. ☐HNO_3 ☐H_2SO_4 ☐NaOH ☐HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐Yes	☐No	☒N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☒Yes	☐No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐Yes	☒No	☐N/A	14.
Trip Blank Present?	☒Yes	☐No	☐N/A	15.
Trip Blank Custody Seals Present?	☐Yes	☒No	☐N/A	
Pace Trip Blank Lot # (if purchased):				

Comments:
1. The vendor labels state HCl
2. as the preservative. The client
3. labels, which covered the vendor
4. labels, state different preservatives
5. on same containers.
7. NO TAT on COC
12. The trip blanks were logged in as the same as the relinquished date. And
13. SK only received 2 containers.

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: JENNI GROSS **Date:** 10/06/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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(612)607-1700

December 15, 2016

Brian Peters
GHD Services, Inc.
20818 44th Avenue W
Suite 190
Lynnwood, WA 98036

RE: Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Dear Brian Peters:
Enclosed are the analytical results for sample(s) received by the laboratory on December 07, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross
jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Jeffrey Cloud, GHD Services Inc.

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification UST-107
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10372403001	**Trip Blank**	Water	12/06/16 00:00	12/07/16 10:00
10372403002	**GW-120616-BP-MW-16**	Water	12/06/16 12:25	12/07/16 10:00
10372403003	**GW-120616-BP-MW-14**	Water	12/06/16 13:30	12/07/16 10:00
10372403004	**GW-120616-BP-MW-15**	Water	12/06/16 14:00	12/07/16 10:00

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SAMPLE ANALYTE COUNT

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10372403002	GW-120616-BP-MW-16	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M
10372403003	GW-120616-BP-MW-14	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M
10372403004	GW-120616-BP-MW-15	NWTPH-Dx	MT	4	PASI-M
		NWTPH-Gx	KMZ	2	PASI-M
		EPA 8260B	AH2	7	PASI-M

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Method: **NWTPH-Dx**
Description: NWTPH-Dx GCS LV
Client: GHD Services Inc
Date: December 15, 2016

General Information:
3 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA Mod. 3510C with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Method: **NWTPH-Gx**
Description: NWTPH-Gx GCV
Client: GHD Services Inc
Date: December 15, 2016

General Information:
3 samples were analyzed for NWTPH-Gx. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Method: **EPA 8260B**
Description: 8260B MSV UST
Client: GHD Services Inc
Date: December 15, 2016

General Information:
3 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Sample: GW-120616-BP-MW-16 **Lab ID: 10372403002** Collected: 12/06/16 12:25 Received: 12/07/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C								
Diesel Fuel Range	**<0.22**	mg/L	2.4	0.22	1	12/07/16 14:26	12/14/16 14:58	68334-30-5	
Motor Oil Range	**<0.42**	mg/L	2.4	0.42	1	12/07/16 14:26	12/14/16 14:58		
Surrogates									
o-Terphenyl (S)	83	%.	50-150		1	12/07/16 14:26	12/14/16 14:58	84-15-1	
n-Triacontane (S)	87	%.	50-150		1	12/07/16 14:26	12/14/16 14:58	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx								
TPH as Gas	**<15.0**	ug/L	100	15.0	1		12/08/16 17:51		
Surrogates									
a,a,a-Trifluorotoluene (S)	88	%.	50-150		1		12/08/16 17:51	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.095**	ug/L	1.0	0.095	1		12/08/16 18:27	71-43-2	
Ethylbenzene	**<0.089**	ug/L	1.0	0.089	1		12/08/16 18:27	100-41-4	
Toluene	**<0.083**	ug/L	1.0	0.083	1		12/08/16 18:27	108-88-3	
Xylene (Total)	**<0.19**	ug/L	3.0	0.19	1		12/08/16 18:27	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%.	75-125		1		12/08/16 18:27	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		12/08/16 18:27	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125		1		12/08/16 18:27	460-00-4	

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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Sample: GW-120616-BP-MW-14 **Lab ID: 10372403003** Collected: 12/06/16 13:30 Received: 12/07/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C								
Diesel Fuel Range	**<0.22**	mg/L	2.4	0.22	1	12/07/16 14:26	12/14/16 15:20	68334-30-5	
Motor Oil Range	**<0.42**	mg/L	2.4	0.42	1	12/07/16 14:26	12/14/16 15:20		
Surrogates									
o-Terphenyl (S)	93	%.	50-150		1	12/07/16 14:26	12/14/16 15:20	84-15-1	
n-Triacontane (S)	92	%.	50-150		1	12/07/16 14:26	12/14/16 15:20	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx								
TPH as Gas	**1460**	ug/L	100	15.0	1		12/08/16 18:31		
Surrogates									
a,a,a-Trifluorotoluene (S)	111	%.	50-150		1		12/08/16 18:31	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.095**	ug/L	1.0	0.095	1		12/08/16 18:44	71-43-2	
Ethylbenzene	**0.14J**	ug/L	1.0	0.089	1		12/08/16 18:44	100-41-4	
Toluene	**0.12J**	ug/L	1.0	0.083	1		12/08/16 18:44	108-88-3	
Xylene (Total)	**<0.19**	ug/L	3.0	0.19	1		12/08/16 18:44	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%.	75-125		1		12/08/16 18:44	17060-07-0	
Toluene-d8 (S)	94	%.	75-125		1		12/08/16 18:44	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125		1		12/08/16 18:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Sample: GW-120616-BP-MW-15 **Lab ID: 10372403004** Collected: 12/06/16 14:00 Received: 12/07/16 10:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C								
Diesel Fuel Range	**<0.22**	mg/L	2.4	0.22	1	12/07/16 14:26	12/14/16 15:43	68334-30-5	
Motor Oil Range	**<0.42**	mg/L	2.4	0.42	1	12/07/16 14:26	12/14/16 15:43		
Surrogates									
o-Terphenyl (S)	89	%.	50-150		1	12/07/16 14:26	12/14/16 15:43	84-15-1	
n-Triacontane (S)	90	%.	50-150		1	12/07/16 14:26	12/14/16 15:43	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx								
TPH as Gas	**<15.0**	ug/L	100	15.0	1		12/08/16 18:11		
Surrogates									
a,a,a-Trifluorotoluene (S)	89	%.	50-150		1		12/08/16 18:11	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B								
Benzene	**<0.095**	ug/L	1.0	0.095	1		12/08/16 19:01	71-43-2	
Ethylbenzene	**<0.089**	ug/L	1.0	0.089	1		12/08/16 19:01	100-41-4	
Toluene	**<0.083**	ug/L	1.0	0.083	1		12/08/16 19:01	108-88-3	
Xylene (Total)	**<0.19**	ug/L	3.0	0.19	1		12/08/16 19:01	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%.	75-125		1		12/08/16 19:01	17060-07-0	
Toluene-d8 (S)	96	%.	75-125		1		12/08/16 19:01	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125		1		12/08/16 19:01	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

QC Batch: 450913 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10372403002, 10372403003, 10372403004

METHOD BLANK: 2468864 Matrix: Water
Associated Lab Samples: 10372403002, 10372403003, 10372403004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
TPH as Gas	ug/L	16.1J	100	15.0	12/08/16 16:29	
a,a,a-Trifluorotoluene (S)	%.	86	50-150		12/08/16 16:29	

LABORATORY CONTROL SAMPLE & LCSD: 2468865 2468866

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1180	1010	118	101	70-125	15	20	
a,a,a-Trifluorotoluene (S)	%.				100	92	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

QC Batch: 450841 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10372403002, 10372403003, 10372403004

METHOD BLANK: 2468451 Matrix: Water
Associated Lab Samples: 10372403002, 10372403003, 10372403004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Benzene	ug/L	<0.095	1.0	0.095	12/08/16 12:05	
Ethylbenzene	ug/L	<0.089	1.0	0.089	12/08/16 12:05	
Toluene	ug/L	<0.083	1.0	0.083	12/08/16 12:05	
Xylene (Total)	ug/L	<0.19	3.0	0.19	12/08/16 12:05	
1,2-Dichloroethane-d4 (S)	%.	104	75-125		12/08/16 12:05	
4-Bromofluorobenzene (S)	%.	103	75-125		12/08/16 12:05	
Toluene-d8 (S)	%.	95	75-125		12/08/16 12:05	

LABORATORY CONTROL SAMPLE: 2468452

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.1	100	75-125	
Ethylbenzene	ug/L	20	18.1	91	75-125	
Toluene	ug/L	20	18.4	92	75-125	
Xylene (Total)	ug/L	60	57.3	96	75-125	
1,2-Dichloroethane-d4 (S)	%.			101	75-125	
4-Bromofluorobenzene (S)	%.			99	75-125	
Toluene-d8 (S)	%.			97	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2468453 2468454

Parameter	Units	10372404001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	1.9	20	20	22.9	24.5	105	113	52-147	7	30	
Ethylbenzene	ug/L	554	200	200	782	759	114	102	67-149	3	30	
Toluene	ug/L	10.3	20	20	30.0	31.2	98	104	69-139	4	30	
Xylene (Total)	ug/L	1400	600	600	2110	2040	119	107	70-147	4	30	
1,2-Dichloroethane-d4 (S)	%.						106	106	75-125			
4-Bromofluorobenzene (S)	%.						98	101	75-125			
Toluene-d8 (S)	%.						98	98	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

QC Batch: 450666 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV
Associated Lab Samples: 10372403002, 10372403003, 10372403004

METHOD BLANK: 2467567 Matrix: Water
Associated Lab Samples: 10372403002, 10372403003, 10372403004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Diesel Fuel Range	mg/L	<0.037	0.40	0.037	12/14/16 10:06	
Motor Oil Range	mg/L	<0.071	0.40	0.071	12/14/16 10:06	
n-Triacontane (S)	%.	71	50-150		12/14/16 10:06	
o-Terphenyl (S)	%.	74	50-150		12/14/16 10:06	

LABORATORY CONTROL SAMPLE: 2467568

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel Range	mg/L	2	1.5	74	50-150	
Motor Oil Range	mg/L	2	1.7	87	50-150	
n-Triacontane (S)	%.			80	50-150	
o-Terphenyl (S)	%.			93	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2467964 2467965

Parameter	Units	10372401001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel Range	mg/L	<0.040	2.1	2.1	1.8	1.8	83	84	50-150	1	30	
Motor Oil Range	mg/L	<0.077	2.1	2.1	1.7	1.8	79	84	50-150	4	30	
n-Triacontane (S)	%.						80	83	50-150			
o-Terphenyl (S)	%.						85	88	50-150			

SAMPLE DUPLICATE: 2467570

Parameter	Units	10372328001 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range	mg/L	ND	0.067J		30	
Motor Oil Range	mg/L	ND	0.075J		30	
n-Triacontane (S)	%.	89	96	7		
o-Terphenyl (S)	%.	93	97	3		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

METHOD CROSS REFERENCE TABLE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Parameter	Matrix	Analytical Method	Preparation Method
8260B MSV UST	Water	SW-846 8260B/5030B	N/A

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 062308-2016 JFS Maple Valley H
Pace Project No.: 10372403

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10372403002	**GW-120616-BP-MW-16**	EPA Mod. 3510C	450666	NWTPH-Dx	451727
10372403003	**GW-120616-BP-MW-14**	EPA Mod. 3510C	450666	NWTPH-Dx	451727
10372403004	**GW-120616-BP-MW-15**	EPA Mod. 3510C	450666	NWTPH-Dx	451727
10372403002	**GW-120616-BP-MW-16**	NWTPH-Gx	450913		
10372403003	**GW-120616-BP-MW-14**	NWTPH-Gx	450913		
10372403004	**GW-120616-BP-MW-15**	NWTPH-Gx	450913		
10372403002	**GW-120616-BP-MW-16**	EPA 8260B	450841		
10372403003	**GW-120616-BP-MW-14**	EPA 8260B	450841		
10372403004	**GW-120616-BP-MW-15**	EPA 8260B	450841		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10372403

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GHD	Report To:	brian.peters@ghd.com	Attention:	Accounts Payable
Address:	20818 44th Ave W, Suite 190	Copy To:	jeffrey.cloud@ghd.com	Company Name:	GHD
	Lynnwood, Wa 98036			Address:	20818 44th Ave W, Suite 190, 98036
Email To:	Brian Peters & Jeffrey Cloud	Purchase Order No.		Pace Quote Reference:	
Phone:	Fax:	Client Project ID:	062308-2016 JFS Maple Valley Hwy	Pace Project Manager:	Jenni Gross
Requested Due Date/TAT:	10 Day (Standard)	Container Order Number:		Pace Profile #:	35119 / 1

Regulatory Agency

State / Location: WA / Maple Valley

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): BTEX	NWTPH Gx	NWTPH Dx	Residual Chlorine (Y/N)	
1	Trip Blank								4															001
2	GW-120616-BP-MW-16		G	12/6	1225	12/6	1225		9										X	X	X			002
3	GW-120616-BP-MW-14		G	12/6	1330	12/6	1330		9										X	X	X			003
4	GW-120616-BP-MW-15		G	12/6	1400	12/6	1400		9										X	X	X			004
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*SILICA GEL? YES NO	Brian Peters	12/6/16	1520	[illegible] PACE	12/6/16	1575	1.4	Y	N	Y
	[illegible]	12/6/16	1530	Lisi / PACE	12-07-16	10:00	0.3	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed:

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02Aug2016 Page 1 of 2
	Document No.: F-MN-L-213-rev.17	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: GHD

Project #: WO#: 10372403

10372403

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ SpeeDee ☐ Other:
Tracking Number: 7021 4575 5192

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☐ Yes ☑ No

Thermometer Used: ☑ 151401163 ☐ 151401164 ☐ B88A912167504 ☐ B88A0143310098 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.3 **Cooler Temp Corrected (°C):** 0.3 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A
Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** ISC 12-07-16
USDA Regulated Soil (☑ N/A, water sample)
Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No
Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No
If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes ☑ Yes	☐ No ☐ No	☑ N/A ☐ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☑ Yes	☐ No	☐ N/A	14. All Trip Blanks
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☑ No	☐ N/A	
Pace Trip Blank Lot # (If purchased): 051616-3BZA				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Jeff Cloud Date/Time: 12/07/16

Comments/Resolution: NWTPHDx was received in 40mL VOA vials, per Jeff Pace can proceed with NWTPHDx analysis if the action limit can be met by the MDL.

Project Manager Review: JENNI GROSS **Date:** 12/07/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical	Document Name: Cooler Transfer Check List	Revised Date: 23Apr2013 Page 1 of 1
	Document Number: F-MN-C-120-rev.01	Issuing Authority: Pace Minnesota Quality Office

Cooler Transfer Check List

Client: GHD

Project Manager: Jenni Gross

Profile/Line #: 35119/1

Received with Custody Seal: Yes (No)

Custody Seal Intact: Yes No (NA)

	Temp Read	Corrected Temp	Correction Factor
Temperature C:	1.2	1.4	+0.2

IR Gun # (IR1) - Q281 IR2 - 122065284

☑ Samples on ice, cooling process has begun

Rush/Short Hold: no

Containers Intact: (Yes) No

Re-packed and Re-Iced: /

Temp Blank Included: (Yes) No

Shipped By/Date: UPS 12-6-16

Notes:

Ship to: (Pace MN) Pace Davis