



Weston Solutions, Inc.
Suite 300
425 G Street
Anchorage, Alaska 99501
Phone: (907) 276-6610 • Fax: (907) 276-6694
www.westonsolutions.com

April 13, 2022

Mr. Kijun Hong
Harvest Alaska, LLC
Environmental Specialist
35350 Kalifornsky Beach Road
Kenai, AK 99611
Email: khong@harvestmidstream.com

**RE: Groundwater Monitoring Report – 1968 Pipeline Spill
Former Drift River Terminal
Cook Inlet, Alaska**

Dear Mr. Hong,

Weston Solutions, Inc. (Weston) has prepared this report for Harvest Alaska, LLC (Harvest) summarizing the field activities and analytical results associated with the annual groundwater monitoring for the 1968 Pipeline Spill at the former Drift River Terminal (DRT) located in Cook Inlet, AK. This site is listed in the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database under File Number 2320.38.023 and Hazard ID Number 7.

1.0 LOCATION

DRT is located approximately 30 air miles west of Kenai, AK, where Drift River empties into Redoubt Bay in Sections 13 and 24, Township 6N, Range 17W, Seward Meridian, at approximately 60°36'10.8"N, 152°10'26.8"W (Figure 1).

2.0 BACKGROUND

DRT is a former onshore crude oil bulk storage facility that received and stored crude oil from offshore oil production facilities located in Cook Inlet. Crude oil was stored at DRT, loaded onto tankers via the Christy Lee Platform, and transported across the Cook Inlet to the Marathon Refinery in Nikiski. Shortly after the DRT facility commenced operation in 1968, a leak was discovered in the 42-inch diameter pipeline along the facility access road from the aboveground storage tanks to the runway. The pipeline was excavated, and the leak, repaired. However, extensive remediation of impacted soils could not be completed at that time.

A series of well points and hand-augered borings were installed in 1996 to delineate the extent of soil and groundwater contamination. Fourteen monitoring wells (WP-1 through WP-14) were

installed at the facility to monitor the hydrocarbon plume. Soil contamination was identified parallel to the pipeline for approximately 350 feet (ft) at a depth of 4 to 6 ft below ground surface (bgs). Analytical sampling was conducted in 1996 and 2000. ADEC issued a Record of Decision (ROD) in November 2002 that soil and shallow groundwater cleanup levels would remain as established in Method Two Migration to Groundwater 18 Alaska Administrative Code (AAC) 75.340 and Table C (18 AAC 70.345), respectively.

A groundwater elevation survey conducted in 2004 determined that the groundwater gradient runs from north to south, generally parallel to the Drift River. A slight northeast to southwest decline is present locally in the vicinity of the 1968 pipeline release (OilRisk Consultants [OilRisk], 2004).

Annual groundwater monitoring for benzene, toluene, ethylbenzene, and total xylenes (BTEX) (at locations WP-1, WP-2, WP-3, WP-4, WP-5, WP-7) and for light nonaqueous phase liquid (LNAPL) recovery (at locations WP-6 and WP-8) has been conducted from 2004 to 2011 and from 2014 to 2019. Beginning in 2017, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) were added to the analysis for groundwater samples collected from WP-1, WP-2, and WP-7. With ADEC approval, groundwater monitoring activities were not conducted in 2020 due to the COVID-19 pandemic.

Historically, benzene has been reported at concentrations that exceed the ADEC cleanup criterion in WP-1, WP-2, and WP-7 (Brice Environmental [Brice], 2016). With the additional VOC and PAH analysis in 2017, naphthalene has also exceeded ADEC cleanup criterion in WP-1, WP-2, and WP-7. No other VOCs or PAHs have exceeded their respective ADEC Table C criteria (Jacobs Engineering Group Inc. [Jacobs], 2021).

LNAPL has been measured 12 times in WP-6 between 2003 and 2018 and was measured to be 3.03 ft thick in 2014. LNAPL in WP-8 has been measured during every sampling event since September 1996, excluding 2007 and 2009. LNAPL was measured in WP-1 once in 1996 (Brice, 2016). LNAPL was removed from WP-6 and WP-8 bi-weekly from July through September 2019. The product thickness was typically measured between 0.01 ft and 0.02 ft and was removed using a bailer and absorbent socks.

3.0 2021 FIELD ACTIVITIES

Weston qualified environmental professionals conducted the annual groundwater monitoring activities of WP-1 through WP-8 on September 26, 2021. Activities were conducted in accordance with ADEC *Field Sampling Guidance* dated October 2019 (ADEC, 2019) and the approved *2021 Groundwater Monitoring Work Plan, Drift River Terminal, 1968 Spill* (Weston, 2021). Groundwater monitoring locations are presented on Figure 2.

Work Plan Deviations

The following work plan deviations occurred during the project activities:

- Groundwater samples were collected using a 1.5-inch diameter Teflon™ bailer instead of a 1.75-inch QED bladder pump. The internal diameter of the riser pipe for WP-1 through WP-8 prevented the QED pump from being placed in the sampling point.
- Continuous low flow purging procedures were not conducted during the sampling event with a QED bladder pump. Three well volumes were removed from each well point using the Teflon™ 1.5-inch diameter bailer. Laboratory sample containers were filled directly from the bailer.
- A groundwater sample was not collected from WP-4 as the bailer would not advance past the riser/screen joint to reach groundwater.

Groundwater Monitoring and Sampling

A Solinst® oil-water interface probe was used to measure the static water levels and determine the presence of free product in the well points. Depth to water ranged from 5.27 ft below top of casing (BTOC) in WP-5 to 7.91 ft BTOC in WP-7. LNAPL was present in WP-6 and WP-8; therefore, groundwater samples were collected in WP-1, WP-2, WP-3, WP-5, and WP-7. As mentioned, a groundwater sample was not able to be collected from WP-4. A minimum of three well volumes of water were removed with a dedicated Teflon™ bailer and placed into 5-gallon buckets for filtering through a granular activated carbon (GAC) unit. Temperature, dissolved oxygen, electrical conductivity, hydrogen ion concentration (pH), oxidation-reduction potential, and turbidity were measured using a YSI® Model 556 water quality meter before and after the well volumes were removed. Depth to water, water quality parameters, and general observations are provided on the groundwater sampling forms in Attachment 1. Figure 3 presents LNAPL observations or groundwater exceedances at each sample location.

Groundwater samples were collected using a new, disposable Teflon™ bailer for each well point. The laboratory supplied containers were filled directly from the bailer. Samples for BTEX/VOC analysis were collected first, in 40-milliliter (ml) vials that were pre-preserved with hydrochloric acid. Samples for PAH analysis were then collected in 250 ml non-preserved glass containers. Groundwater samples were analyzed by SGS North America Inc. (SGS), an ADEC-approved laboratory located in Anchorage, AK. All samples including quality control (duplicate, matrix spike, matrix spike duplicate) were stored on ice and delivered to SGS under standard chain-of-custody procedures at a temperature of 4 degrees Celsius (°C) ± 2 °C. The samples were analyzed for the following parameters:

- BTEX by EPA Method SW8260D (WP-3 and WP-5).
- VOC (Petroleum) by EPA Method 8260D (WP-1, WP-2, and WP-7).
- PAH by EPA Method 8270D (WP-1, WP-2, WP-3, WP-5, and WP-7).

Free Product Recovery

LNAPL was measured with a product thickness of 0.01 ft in both WP-6 and WP-8. This is consistent with measurements recorded in 2019, where less than one quarter cup of LNAPL was recoverable with a bailer and placed in the oil-water separator when the DRT was operational. Due to the small amount of recoverable LNAPL, new absorbent socks were installed in WP-6 and WP-08 during the September activities.

Investigation-Derived Waste

Investigation-derived waste produced during the sampling event consisted of used field sampling materials (nitrile gloves, paper towels, etc.), decontamination water, and spent absorbent socks. The Solinst oil-water interface probe and water level meters were decontaminated between sampling at each well point by being wiped down with an absorbent pad and subsequently scrubbed and rinsed with a solution of Alconox[®] and deionized water. The 0.5 gallons of decontamination/oily-water mixture and 0.34 gallons (two 22-ounce absorbent socks) were disposed of by U.S. Ecology in Anchorage, AK, and Grand View, ID, respectively. Used field sampling materials (nitrile gloves, paper towels, etc.) were placed in the dumpster at Harvest's airport hangar in Kenai for disposal at the Kenai Peninsula Borough Landfill. The approved ADEC Contaminated Media Transport and Treatment or Disposal Approval Forms for the rinse water and absorbent socks are provided in Attachment 2.

Analytical results of the 2019 sampling event were reviewed prior to field mobilization to verify that benzene concentrations were below the Resource Conservation and Recovery Act (RCRA) limit of 0.5 milligrams per liter and that purge water could be filtered through a GAC unit. Measurements of pH recorded during the 2021 sampling event ranged from 4.40 and 6.44 standard units (SU) and were between the acceptable RCRA range of greater than 2 SU and less than 12 SU. Approximately 7.5 gallons of water were removed from the well points prior to sample collection and were placed in a 5-gallon bucket. The field team verified that there was no sheen on the water, and the 7.5 gallons were then filtered through the GAC unit and discharged to ground surface at a location at least 100 from any surface water.

4.0 ANALYTICAL RESULTS

Validated groundwater results were compared to applicable ADEC Table C Human Health Criteria listed in 18 AAC 75.345 (ADEC, 2021). The groundwater results for VOC may be biased low due to the samples being collected with a bailer instead of a positive displacement pump. The tabulated groundwater results are presented in Table 1. The laboratory data package, quality assurance report (QAR) memorandum, and ADEC checklist are provided in Attachment 3.

Volatile Organic Compounds

Benzene and naphthalene were the only VOCs reported at concentrations that exceed ADEC Table C criteria. Remaining petroleum related VOCs were either detected at concentrations below ADEC Table C criteria or reported as non-detect at the laboratory limit of detection (LOD).

Benzene was reported in WP-1, WP-2, and WP-7 at concentrations of 25.9 micrograms per liter ($\mu\text{g/L}$), 20.3 $\mu\text{g/L}$, and 25.4 $\mu\text{g/L}$, respectively, which exceed the criterion of 4.6 $\mu\text{g/L}$. Naphthalene was reported in WP-1 at a concentration of 8.51 $\mu\text{g/L}$, which exceeds the criterion of 1.7 $\mu\text{g/L}$.

Polycyclic Aromatic Hydrocarbons

Naphthalene was the only PAH reported at a concentration that exceeds ADEC Table C criteria. Remaining PAHs were either detected at concentrations below ADEC Table C criteria or reported as non-detect at the laboratory LOD. Naphthalene was only reported in WP-1 at 4.24 $\mu\text{g/L}$, which exceeds the criterion of 1.7 $\mu\text{g/L}$.

5.0 MANN-KENDALL STATISTICAL ANALYSIS

The Mann-Kendall Analysis was conducted using historical benzene concentrations from 1996 through 2021 (Table 2) on WP-7. The analysis did not identify any significant trends (increasing or decreasing) in the benzene concentrations at $\alpha = 0.05$, indicating the plume may be stable. The statistical input and trend graph are provided in Attachment 4.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Analytical results of groundwater samples indicate that benzene and naphthalene are contaminants of concern that continue to exceed ADEC Table C Human Health Criteria. Measurable LNAPL was present in both WP-6 and WP-8. Findings from September 2021 groundwater monitoring are consistent with results from previous sampling events. Historical BTEX concentrations since 1996 are presented in Table 2. The benzene and recent naphthalene exceedances occur in WP-1, WP-2, and WP-7. The plume is defined to the east and south and is not bounded the west and north.

Additional site characterization activities and annual groundwater sampling will be conducted during summer 2022. Activities will consist of advancing soil borings and installing several monitoring wells to further delineate the extent of contamination of the 1968 Pipeline Spill. The activities will be conducted in accordance with Harvest's Delineation Work Plan Drift River Terminal approved by ADEC on October 6, 2021.

Weston appreciates the opportunity to support Harvest with the 1968 Spill groundwater monitoring activities at the former DRT facility. Please do not hesitate to contact Martin Mylet, Project Manager, if you have any questions.

Sincerely,

Weston Solutions, Inc.

A handwritten signature in black ink that reads "Martin Mylet".

Martin Mylet

Project Manager

Phone: (907) 276-6610

E-mail: Martin.Mylet@Westonsolutions.com

Attachments

1. Groundwater Sampling Forms
2. ADEC Contaminated Media Transport and Treatment or Disposal Approval Forms
3. Laboratory Analytical Results, ADEC Checklist, and QAR Memo
4. Mann-Kendall Statistical Analysis

7.0 REFERENCES

ADEC (Alaska Department of Environmental Conservation). 2019. *Field Sampling Guidance*. October.

ADEC. 2021. Alaska Administrative Code (18 AAC 75), Oil and Other Hazardous Substances Pollution Control. November.

Brice (Brice Incorporated). 2016. *2015 Groundwater Monitoring Report, 1968 Pipeline Spill*.

Jacobs (Jacobs Engineering Group Inc.). 2021. 2019 Drift River Terminal 1968 Spill Groundwater Monitoring Report.

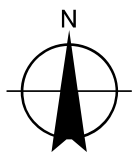
OilRisk (OilRisk Consultants). 2004. Corrective Measures Completion Report. April.

Weston (Weston Solutions, Inc.). 2021. *2021 Groundwater Monitoring Work Plan, Drift River Terminal, 1968 Spill*. October.

FIGURES



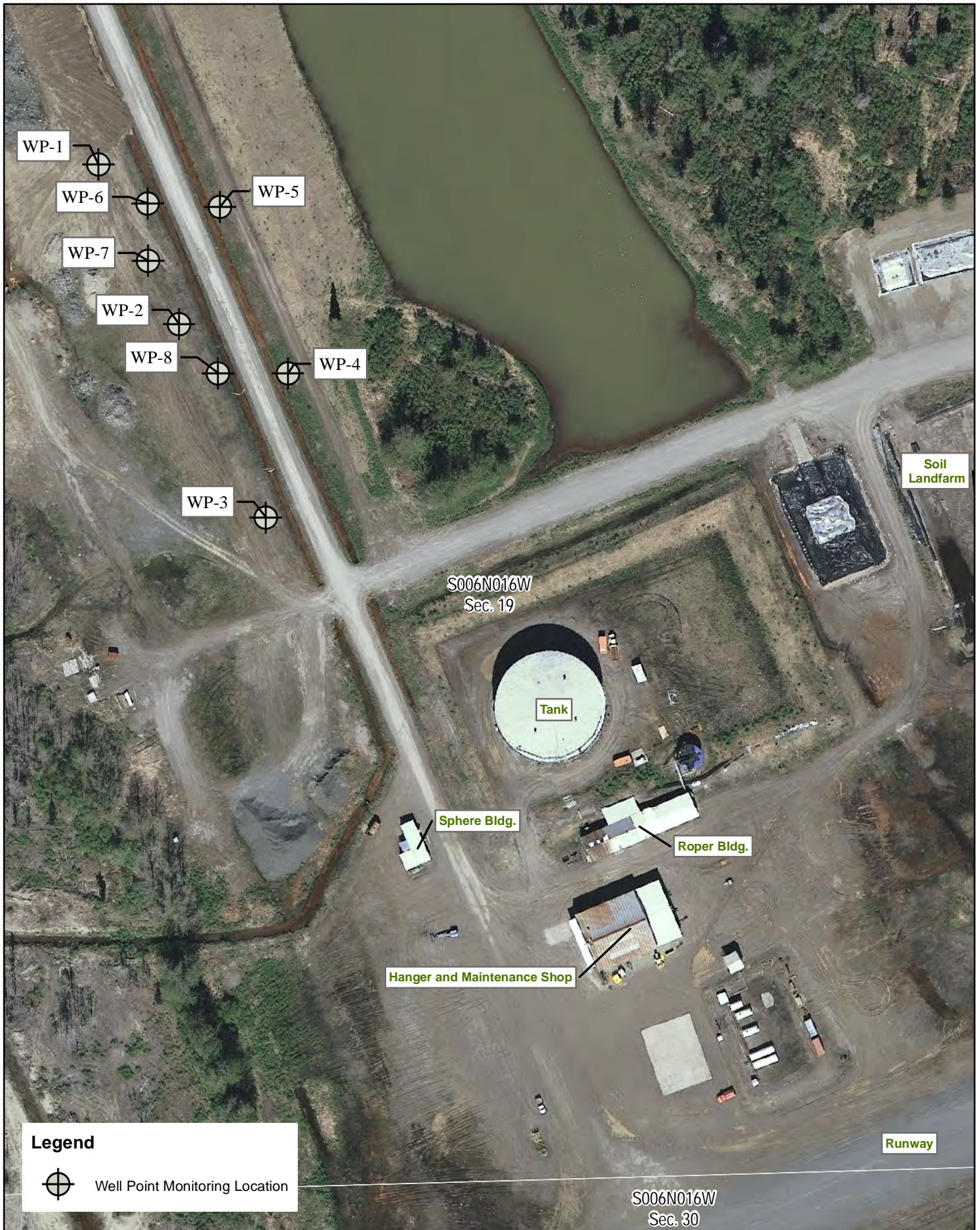
Date: 29 Aug 2018




**DRIFT RIVER TERMINAL
1968 SPILL MONITORING
LOCATION MAP**

Harvest Alaska, LLC
Drift River Terminal, Alaska

Figure
1



Legend

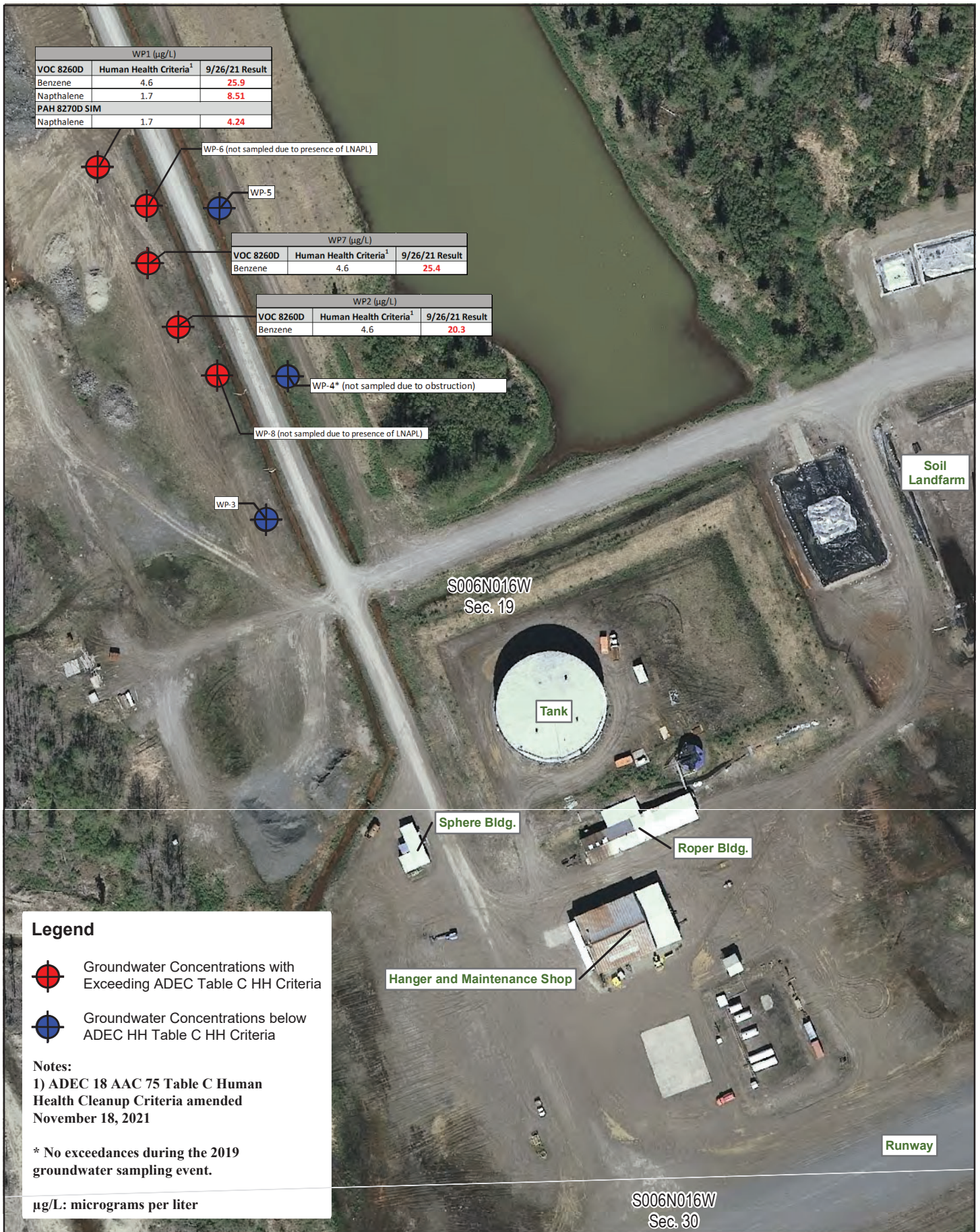
 Well Point Monitoring Location

**FIGURE 2
DRIFT RIVER TERMINAL
1968 SPILL MONITORING WORK PLAN
WELL POINT LOCATIONS**



1 inch = 150 feet
Alaska State Plane Zone 5 NAD 1983

0 50 100 150 200
Feet





Legend

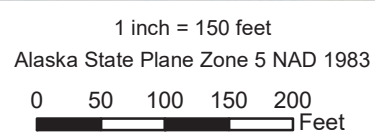
-  Groundwater Concentrations with Exceeding ADEC Table C HH Criteria
-  Groundwater Concentrations below ADEC HH Table C HH Criteria

Notes:
 1) ADEC 18 AAC 75 Table C Human Health Cleanup Criteria amended November 18, 2021

* No exceedances during the 2019 groundwater sampling event.

µg/L: micrograms per liter

**FIGURE 3
 DRIFT RIVER TERMINAL
 1968 SPILL MONITORING POINTS
 GROUNDWATER EXCEEDANCES
 SEPTEMBER 26, 2021**



TABLES

**Table 1
Analytical Groundwater Results
Drift River Terminal
Cook Inlet, Alaska**

Analyte	ADEC Groundwater Cleanup Levels ¹	Client Sample ID:	GW-DRT-WP3 -092621-06		GW-DRT-WP22 -092621-05 ²		GW-DRT-WP2 -092621-04		GW-DRT-WP7 -092621-03		GW-DRT-WP1 -092621-02		GW-DRT-WP5 -092621-01	
			Sampling Date:		9/26/2021		9/26/2021		9/26/2021		9/26/2021		9/26/2021	
			Analysis		Result		Result		Result		Result		Result	
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	56	SW8260D	--		1.94		2.01		5.43		11.6		--	
1,2-Dibromoethane	0.075	SW8260D	--		0.0375	U	0.0375	U	0.0375	U	0.0375	U	--	
1,2-Dichloroethane	1.7	SW8260D	--		0.25	U	0.25	U	0.25	U	0.25	U	--	
1,3,5-Trimethylbenzene	60	SW8260D	--		0.57	J	0.57	J	2.11		2.17		--	
Benzene	4.6	SW8260D	0.2	U	19.2		20.3		25.4		25.9		0.2	U
Cyclohexane	13,000	SW8260D	--		219	(J-C)	218	(J-C)	682	(J-C)	40.6		--	
Ethylbenzene	15	SW8260D	0.5	U	0.5	U	0.5	U	0.38	J	0.55	J	0.5	U
Isopropylbenzene (Cumene)	450	SW8260D	--		0.72	J	0.75	J	2.69		3.22		--	
Methyl-t-butyl ether	140	SW8260D	--		5	U	5	U	5	U	5	U	--	
Naphthalene	1.7	SW8260D	--		0.85	J	0.9	J	1.14		8.51		--	
P & M -Xylene	NP	SW8260D	1	U	8.24		8.65		25.4		19.7		1	U
Toluene	1,100	SW8260D	0.5	U	0.59	J	0.6	J	1.35		0.5	U	0.5	U
Xylenes (total)	190	SW8260D	1.5	U	8.24		8.65		25.4		19.7		1.5	U
n-Butylbenzene	1,000	SW8260D	--		0.5	U	0.5	U	0.5	U	0.5	U	--	
n-Propylbenzene	660	SW8260D	--		0.45	J	0.45	J	2.13		2.84		--	
n-hexane	1,500	SW8260D	--		4.08		3.82		16.1		0.5	U	--	
o-Xylene	NP	SW8260D	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	2,000	SW8260D	--		0.5	U	0.5	U	0.64	J	1.01		--	
tert-Butylbenzene	690	SW8260D	--		0.5	U	0.5	U	0.5	U	0.5	U	--	
Polycyclic Aromatic Hydrocarbons														
1-Methylnaphthalene	11	8270D SIM	0.024	U (UJ-S)	0.162	(J-S,D)	0.41	(J-D)	0.399	(J-S)	1.94	(J-S)	0.0186	J (J-S)
2-Methylnaphthalene	36	8270D SIM	0.024	U (UJ-S)	0.158	(J-S,D)	0.471	(J-D)	0.455	(J-S)	2.15	(J-S)	0.0217	J (J-S)
Acenaphthene	530	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Acenaphthylene	260	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Anthracene	43	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.359		0.024	U (UJ-S)	0.17	(J-S)	0.024	U (UJ-S)
Benzo(a)Anthracene	0.3	8270D SIM	0.024	U (UJ-S)	0.0201	J (J-S,D)	0.162	(J-D)	0.0145	J (J-S)	0.0605	(J-S)	0.024	U (UJ-S)
Benzo[a]pyrene	0.25	8270D SIM	0.0096	U (UJ-S)	0.0107	U (UJ-S)	0.0096	U	0.0096	U (UJ-S)	0.0107	U (UJ-S)	0.0096	U (UJ-S)
Benzo[b]Fluoranthene	2.5	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Benzo[g,h,i]perylene	0.26	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.0868		0.024	U (UJ-S)	0.0493	J (J-S)	0.024	U (UJ-S)
Benzo[k]fluoranthene	0.8	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Chrysene	2	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.218		0.0551	(J-S)	0.272	(J-S)	0.024	U (UJ-S)
Dibenzo[a,h]anthracene	0.25	8270D SIM	0.0096	U (UJ-S)	0.0107	U (UJ-S)	0.0096	U	0.0096	U (UJ-S)	0.0107	U (UJ-S)	0.0096	U (UJ-S)
Fluoranthene	260	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Fluorene	290	8270D SIM	0.024	U (UJ-S)	0.03	J (J-S)	0.024	U	0.0553	(J-S)	0.336	(J-S)	0.024	U (UJ-S)
Indeno[1,2,3-c,d] pyrene	0.19	8270D SIM	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U	0.024	U (UJ-S)	0.0266	U (UJ-S)	0.024	U (UJ-S)
Naphthalene	1.7	8270D SIM	0.0481	U (UJ-S)	0.487	(J-S)	0.677		0.752	(J-S)	4.24	(J-S)	0.044	J (J-S)
Phenanthrene	170	8270D SIM	0.024	U (UJ-S)	0.0577	(J-S,D)	0.554	(J-D)	0.0983	(J-S)	0.348	(J-S)	0.0211	J (J-S)
Pyrene	120	8270D SIM	0.024	U (UJ-S)	0.0288	J (J-S,D)	0.305	(J-D)	0.024	U (UJ-S)	0.167	(J-S)	0.024	U (UJ-S)

Notes:

All units in micrograms per liter (µg/L).

Highlighted results exceed ADEC Human Health Criteria.

Bold detections fall below ADEC Human Health Criteria.

-- indicates the analyte was not analyzed for this sample.

¹ ADEC Table C Human Health Criteria – Alaska Department of Environmental Conservation, 18 AAC 75 (ADEC, 2021).

² GW-DRT-WP22-092621-05 is a duplicate sample of GW-DRT-WP2-092621-04.

J: The result is considered estimated because it is below the LOD.

U: The result was undetected in the sample at the LOD.

(J-C): The result is considered estimated because concentration is above limit of the five-point calibration and was not diluted within holding time criteria.

(J-D): The positive results in the primary and duplicate samples are considered estimated because the relative percent difference did not meet the ADEC criterion of 50%.

(J-S): The result is considered estimated because the surrogate percent recovery criteria were not met.

(UJ-S): The undetected results in the sample are considered estimated because surrogate criteria were not met.

AAC — Alaska Administrative Code

ADEC — Alaska Department of Environmental Conservation

ID — identification

LOD — limit of detection

NP — not published

SIM — selected ion monitoring

Table 2
Historical Analytical Results
Drift River Terminal
Cook Inlet, Alaska

Well ID	Sample ID	Date	BTEX EPA Method SW8260B (mg/L)				Comments
			Benzene	Toluene	Ethylbenzene	Total Xylenes ⁴	
ADEC Groundwater Cleanup Levels ¹			0.005	1.0	0.7	10.0	
ADEC Groundwater Cleanup Levels ²			0.0046	1.1	0.015	0.190	
WP-1	-	7/16/1996	0.33	0.013	0.23	0.584	0.17 ft LNAPL
	-	9/6/1996	0.032	0.0059	0.038	0.15	0.11 ft LNAPL
	-	6/5/2000	0.0044	0.0015	0.01	0.023	
	- ₃		0.006	0.0018	0.013	0.03	
	-	7/14/2004	0.012	ND (0.0005)	0.0006	0.0053	
	-	7/8/2005	0.0012	0.0048	0.0096	0.014	
	- ₃		0.0011	0.0041	0.0017	0.014	
	-	7/6/2006	0.00153	0.00222	0.0038	0.0218	
	-	8/8/2007	0.00247	ND (0.0005)	0.0071	0.0284	
	-	8/27/2008	0.0036	0.00058	0.0052	0.0197	
	-	8/5/2009	0.00699	0.00532	0.0542	0.18	
	-	8/24/2010	0.00278	0.00196	0.0224	ND (0.05)	
	-	7/27/2011	0.00309	0.00376	0.00264	0.00396	
	-	10/14/2014	0.016	0.00018 J	0.0042	0.012	
DR-WP1-1115	11/24/2015	0.0371	ND (0.00031)	0.00844	0.02961		
GW-WP-1-05	11/4/2016	0.0255	ND (0.0055)	0.00454	0.0245 J		
WP-2	-	7/16/1996	0.16	0.0061	0.22	0.45	
	-	9/6/1996	0.061	0.0052	0.069	0.11	
	-	6/5/2000	0.0052	0.0058	ND (0.001)	0.0092	
	-	7/14/2004	0.022	0.017	0.016	0.036	
	-	7/8/2005	0.0058	0.0012	0.0036	0.012	
	-	7/6/2006	0.00728	0.00816	0.00645	0.0134	
	-	8/8/2007	0.0119	ND (0.0005)	0.000702	0.00236	
	-	8/27/2008	0.00703	ND (0.0005)	ND (0.0005)	0.00275	
	-	8/5/2009	0.017	0.00338	0.00215	0.00915	
	-	8/24/2010	0.00866	ND (0.0005)	ND (0.0005)	0.00238	
	-	7/27/2011	0.0187	0.00267	0.000509	0.00559	
	-	10/14/2014	0.016	0.00057	0.00031 J	0.00747	
	DR-WP2-1115	11/24/2015	0.028	ND (0.00031)	ND (0.00031)	0.0107	
	GW-WP-2-07	11/4/2016	0.0306	0.00043 J	ND (0.0005)	0.01633 J	
WP-3	-	7/16/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	9/6/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	6/5/2000	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	
	-	7/14/2004	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	7/8/2005	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	7/6/2006	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/8/2007	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/27/2008	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/5/2009	ND (0.0005)	ND (0.002)	ND (0.002)	ND (0.002)	
	-	8/24/2010	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	
	-	7/27/2011	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	10/14/2014	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0002)	
	DR-WP3-1115	11/24/2015	ND (0.00012)	ND (0.00031)	ND (0.00031)	ND (0.00093)	
	GW-WP-3-03	11/4/2016	ND (0.0002)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
GW-WP-9-04 ³	ND (0.0002)		ND (0.0005)	ND (0.0005)	ND (0.0015)		

**Table 2
Historical Analytical Results
Drift River Terminal
Cook Inlet, Alaska**

Well ID	Sample ID	Date	BTEX EPA Method SW8260B (mg/L)				Comments
			Benzene	Toluene	Ethylbenzene	Total Xylenes ⁴	
ADEC Groundwater Cleanup Levels ¹			<i>0.005</i>	<i>1.0</i>	<i>0.7</i>	<i>10.0</i>	
ADEC Groundwater Cleanup Levels ²			<i>0.0046</i>	<i>1.1</i>	<i>0.015</i>	<i>0.190</i>	
WP-4	-	7/16/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	9/6/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	6/5/2000	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	
	-	7/14/2004	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	7/8/2005	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	7/6/2006	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/8/2007	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/27/2008	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/5/2009	ND (0.0005)	ND (0.002)	ND (0.002)	ND (0.002)	
	-	8/24/2010	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	
	-	7/27/2011	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	10/14/2014	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0002)	
		DR-WP4-1115	11/24/2015	ND (0.00012)	ND (0.00031)	ND (0.00031)	ND (0.00093)
	GW-WP-4-01	11/4/2016	ND (0.0002)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
WP-5	-	7/16/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	9/6/1996	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	6/5/2000	ND (0.001)	0.001	ND (0.001)	ND (0.001)	
	-	7/14/2004	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	
	-	7/8/2005	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	7/6/2006	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/8/2007	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/27/2008	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	8/5/2009	ND (0.0005)	ND (0.002)	ND (0.002)	ND (0.002)	
	-	8/24/2010	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	
	-	7/27/2011	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
	-	10/14/2014	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0002)	
		DR-WP5-1115	11/24/2015	ND (0.00012)	ND (0.00031)	ND (0.00031)	ND (0.00093)
	GW-WP-5-02	11/4/2016	ND (0.0002)	ND (0.0005)	ND (0.0005)	ND (0.0015)	
WP-6	-	7/16/1996	--	--	--	--	
	-	9/6/1996	0.12	0.014	0.014	0.45	
	-	6/5/2000	0.016	0.002	0.031	0.096	
	-	8/2003	--	--	--	--	0.54 ft LNAPL
	-	7/14/2004	0.0082	0.0019	0.017	0.043	0.14 ft LNAPL
	- ₃		0.0092	0.002	0.018	0.048	
	-	7/8/2005	0.0043	0.0016	0.013	0.024	
	-	7/6/2006	0.00643	0.00342	0.0274	0.0544	
	-	8/8/2007	0.00624	0.000623	0.0161	0.0367	0.01 ft LNAPL
	-	8/27/2008	0.00511	0.00069	0.112	0.0233	0.01 ft LNAPL
	-	8/5/2009	0.00657	0.00471	0.00606	0.0159	
	-	8/24/2010	0.0113	0.000752	0.00969	0.0167	0.02 ft LNAPL
	-	7/27/2011	0.0105	0.00183	0.00892	0.0132	0.02 ft LNAPL
	-	10/14/2014	--	--	--	--	3.03 ft LNAPL
	-	11/24/2015	--	--	--	--	0.20 ft LNAPL; plug replaced
-	11/4/2016	--	--	--	--	0.14 ft LNAPL	

Table 2
Historical Analytical Results
Drift River Terminal
Cook Inlet, Alaska

Well ID	Sample ID	Date	BTEX EPA Method SW8260B (mg/L)				Comments
			Benzene	Toluene	Ethylbenzene	Total Xylenes ⁴	
ADEC Groundwater Cleanup Levels ¹			0.005	1.0	0.7	10.0	
ADEC Groundwater Cleanup Levels ²			0.0046	1.1	0.015	0.190	
WP-7	-	7/16/1996	--	--	--	--	
	-	9/6/1996	0.034	0.0067	0.14	0.31	
	-	6/5/2000	0.041	0.0042	0.018	0.032	
	-	7/14/2004	0.038	0.0007	0.019	0.041	
	-	7/8/2005	0.034	0.0052	0.011	0.044	
	-	7/6/2006	0.0525	0.00102	0.0139	0.0484	
	- ³		0.052	0.00189	0.0142	0.0544	
	-	8/8/2007	0.0496	0.000587	0.000949	0.0178	
	- ³		0.0497	ND (0.0005)	0.000892	0.0205	
	-	8/27/2008	0.034	ND (0.0005)	ND (0.0005)	0.0112	
	-	8/5/2009	0.0509	0.0291	0.00466	0.0414	
	- ³		0.0522	0.0204	0.00408	0.0524	
	-	8/24/2010	0.0304	0.00369	0.00603	ND (0.0311)	
	-	7/27/2011	0.0302	0.00906	0.00073	0.0161	
	- ³		0.0298	0.0108	0.000591	0.0187	
	-	10/14/2014	0.065	0.00028	0.0016	0.034	
	- ³		0.053	0.0004 J	0.0016	0.034	
	DR-WP7-1115	11/24/2015	0.0621	ND (0.00031)	ND (0.00031)	0.03101	
	DR-WP79-1115	11/24/2015	0.0646	ND (0.00031)	ND (0.00031)	0.03321	
	GW-WP-7-06	11/4/2016	0.0454	ND (0.005)	ND (0.005)	0.0263	
WP-8	-	7/16/1996	--	--	--	--	
	-	9/6/1996	0.033	0.0047	0.076	0.23	0.13 ft LNAPL
	-	6/5/2000	0.0026	0.0018	0.039	0.13	3.00 ft LNAPL
	-	8/2003	--	--	--	--	1.95 ft LNAPL
	-	7/14/2004	ND (0.0005)	0.0012	0.054	0.17	1.68 ft LNAPL
	-	7/8/2005	ND (0.001)	0.0015	0.081	0.27	0.61 ft LNAPL
	-	7/6/2006	0.000867	0.0015	0.0795	0.179	0.02 ft LNAPL
	-	8/8/2007	0.0009	ND (0.0005)	0.0566	0.165	
	-	8/27/2008	ND (0.0005)	0.00057	0.0439	0.136	0.16 ft LNAPL
	- ³		ND (0.0005)	0.00058	0.0441	0.136	
	-	8/5/2009	0.00238	0.0123	0.056	0.19	
	-	8/24/2010	0.00238	0.00139	0.0551	0.091	0.45 ft LNAPL
	- ³		0.00251	0.0015	0.055	0.0881	
	-	7/27/2011	0.00142	0.00593	0.0423	0.0922	0.60 ft LNAPL
	-	10/14/2014	--	--	--	--	2.00 ft LNAPL
	-	11/24/2015	--	--	--	--	0.20 ft LNAPL
	-	11/4/2016	--	--	--	--	0.76 ft LNAPL

Notes:

Table adapted from 2015 Groundwater Monitoring Report 1968 Pipeline Spill Drift River Terminal, Alaska . Brice Environmental Services Corporation (Brice). Prepared for Hilcorp Alaska, LLC. April 2016.

All results presented in milligrams per liter (mg/L).

Bold value indicates that the analyte exceeds the ADEC Cleanup Level.

-- indicates that a sample was not collected.

¹ ADEC Soil Cleanup Levels from 18 AAC 75.345, Table C, Groundwater Cleanup Levels prior to November 7, 2016.

² ADEC Soil Cleanup Levels from 18 AAC 75.345, Table C, Groundwater Cleanup Levels, Effective November 7, 2016.

³ Duplicate of preceding sample.

⁴ If one group of xylenes was detected and one was not, total xylenes were calculated by adding the detected value to the detection limit.

J: Value is estimated.

ND: Analyte was not detected exceeding the detection limit. Method reporting limit given (in parentheses) for data prior to 2015. For 2015 and 2016 results, detection limit given (in parentheses).

ADEC — Alaska Department of Environmental Conservation

ft — feet

BTEX — benzene, toluene, ethylbenzene, and total xylenes

ID — identification

EPA — U.S. Environmental Protection Agency

LNAPL — light nonaqueous phase liquid

ATTACHMENT 1

GROUNDWATER SAMPLING FORMS



Groundwater Sampling Record

Project Name: Drift River Terminal
 Site Name: Drift River
 Date/Time: 9/26/21 13:30

Well ID: WPI
 Sample No.: GW-DRT-WPI-092621-02
 Sampler(s): W. Sh
 Weather: Sunny 50°

Water Level Measurements and Purge Data

Time	Depth of Well (TOC)	Depth to Water (TOC)	Feet of Water in Well	Gallons per Well Volume <small>(2" dia. = 0.163, 4" dia.=0.653, 3/4" dia = 0.024 gal/ft)</small>
<u>13:30</u>	<u>7.15</u> ft	<u>5.61</u> ft	<u>1.57</u> ft	<u>0.256</u> gal

Well Evacuation Method: Submersible Pump Bladder Pump Bailer Other _____

Purge Rate: / gal/min

Begin Purge: / Total Volume Purged: 0.80 gal

End Purge: / Well Volumes Purged: 3

Purge Water Disposed: Drum onsite Other: G A e

Sample Collection Method & Analysis

Sample Time: 14:10

Sample Description (color, turbidity, odor, sheen, etc.): Cloudy - moderate Petroleum odor and sheen

Analytical Analysis

- GRO
- DRO/RRO
- VOCs retolun
- PAHs
- Metals
- TDS
- COD
- Other Analyses (List Below)

Sample Duplicate and MS/MSD

MS/MSD

Duplicate ID ~~WPI22~~ GW-DRT-W None

Notes:

Sampler Signature: [Signature]



Groundwater Sampling Record

Project Name: DRIFT RIVER TERMINAL Well ID: WP 2
 Site Name: Drift River Sample No.: GW-~~DRT~~ DRT-WP2-092621-04
 Date/Time: 9/26/21 14:30 Sampler(s): W. Shaw
 Weather: Sunny 52°

Water Level Measurements and Purge Data

Time	Depth of Well (TOC)	Depth to Water (TOC)	Feet of Water in Well	Gallons per Well Volume (2" dia. = 0.163, 4" dia.=0.653, 3/4" dia = 0.024 gal/ft)
<u>14:30</u>	<u>10.05 ft</u>	<u>6.78 ft</u>	<u>3.27 ft</u>	<u>0.53 gal</u>

Well Evacuation Method: Submersible Pump Bladder Pump Bailor Other _____
 Purge Rate: _____ gal/min
 Begin Purge: 14:30 Total Volume Purged: 1.6 gal
 End Purge: 14:45 Well Volumes Purged: 3
 Purge Water Disposed: Drum onsite Other: GAC

Sample Collection Method & Analysis

Sample Time: 14:50
 Sample Description (color, turbidity, odor, sheen, etc.): slightly cloudy, moderate POC odor & sheen observed

Analytical Analysis

- GRO
- DRO/RRO
- VOCs Retoken
- PAHs
- Metals
- TDS
- COD
- Other Analyses (List Below)

Sample Duplicate and MS/MSD

MS/MSD
 Duplicate ID GW-DRT-WP22-092621-05

Notes: Duplicate sample true 15:00

Sampler Signature: [Signature]



Groundwater Sampling Record

Project Name: Drift River

Well ID: ~~WP-4~~ WP-3

Site Name: _____

Sample No.: _____

Date/Time: 9/26/2021

Sampler(s): Petersen/Shaw

Weather: Clear, Sunny, Calm 40°

Water Level Measurements and Purge Data

Time	Depth of Well (TOC)	Depth to Water (TOC)	Feet of Water in Well	Gallons per Well Volume <small>(2" dia. = 0.163, 4" dia. = 0.653, 3/4" dia. = 0.024 gal/ft)</small>
<u>15:05</u>	<u>9.93 ft</u>	<u>7.07 ft</u>	<u>2.86 ft</u>	<u>0.446 gal</u>

Well Evacuation Method: Submersible Pump Bladder Pump Bailer Other _____

Purge Rate: 3 at 15:10 gal/min

Begin Purge: 1515

Total Volume Purged: 1.5 gal

End Purge: 1523

Well Volumes Purged: 3

Purge Water Disposed: Drum onsite

Other: CAC on-site

Sample Collection Method & Analysis

Sample Time: 1528

Sample Description (color, turbidity, odor, sheen, etc.): Turbid, Tan

Analytical Analysis

- GRO
- DRO/RRO
- VOCs
- PAHs
- Metals
- TDS
- COD
- Other Analyses (List Below)
STEX

9 VOA (HCl Pres.)
6 250-ml Amber Glass (no Pres.)

Sample Duplicate and MS/MSD

- MS/MSD
- Duplicate ID _____

Notes: STEEL 2" stick-up casing. (1.8" actual measurement I.D. ⌀)

Sampler Signature:

9.93
7.07
2.86



Groundwater Sampling Record

Project Name: Drift River Well ID: WP-5
 Site Name: _____ Sample No.: ~~WP-5-00-DRT-WP5-092621-01~~
 Date/Time: 9/26/2021 Sampler(s): Petersen / Shaw
 Weather: Clear, breezy, 45°

Water Level Measurements and Purge Data

Time	Depth of Well (TOC)	Depth to Water (TOC)	Feet of Water in Well	Gallons per Well Volume <small>(2" dia. = 0.163, 4" dia. = 0.653, 3/4" dia. = 0.024 gal/ft)</small>
	<u>9.83 ft</u>	<u>5.27 ft</u>	<u>4.56 ft</u>	<u>0.74 gal</u>

Well Evacuation Method: Submersible Pump Bladder Pump Bailer Other _____
 Purge Rate: _____ gal/min
 Begin Purge: 13:17 Total Volume Purged: 2.5 gal
 End Purge: 13:25 Well Volumes Purged: 3+
 Purge Water Disposed: Drum onsite Other: GAC filtered on site

Sample Collection Method & Analysis

Sample Time: 13:40
 Sample Description (color, turbidity, odor, sheen, etc.): Turbid. No sheen.

Analytical Analysis

- GRO
 - DRO/RRO
 - VOCs
 - PAHs
 - Metals
 - TDS
 - COD
 - Other Analyses (List Below)
BTEX

- ✓ 3 - VOA (HCl Pres)
✓ 2 - 250-ml Amber Glass (No Pres.)

Sample Duplicate and MS/MSD

- MS/MSD
- Duplicate ID _____

Notes: STEEL 2" casing stickup. (Actual I.D. ϕ = 1.8")

Sampler Signature: 



Groundwater Sampling Record

Project Name: Drift River
 Site Name: _____
 Date/Time: 9/26/2021

Well ID: ~~WP-6~~ WP-7
 Sample No.: _____
 Sampler(s): Petersen / Shaw
 Weather: Clear, Breeze, 45°F

Water Level Measurements and Purge Data

Time	Depth of Well (TOC)	Depth to Water (TOC)	Feet of Water in Well	Gallons per Well Volume <small>(2" dia. = 0.163, 4" dia. = 0.653, 3/4" dia. = 0.024 gal/ft)</small>
<u>14:10</u>	<u>10.78 ft</u>	<u>7.91 ft</u>	<u>2.78 ft</u>	<u>0.34 gal</u>

Well Evacuation Method: Submersible Pump Bladder Pump Bailer Other _____

Purge Rate: _____ gal/min

Begin Purge: 14:26 Total Volume Purged: 1.0 gal

End Purge: 14:32 Well Volumes Purged: 3

Purge Water Disposed: Drum onsite Other: GAC Treated on site

Sample Collection Method & Analysis

Sample Time: 14:35

Sample Description (color, turbidity, odor, sheen, etc.): Turbid, gray-black tinge.

Analytical Analysis

- GRO
- DRO/RRO
- VOCs (Petroleum)
- PAHs
- Metals
- TDS
- COD
- Other Analyses (List Below)

3 VOA w/ HCL

2 250-ml AMBER Glass (No pres) $\frac{10.78}{7.91} = 1.37$

Sample Duplicate and MS/MSD

- MS/MSD
- Duplicate ID _____

Notes: PVC SCH-40 2" Casing Stick-up.

Sampler Signature: [Signature]

ATTACHMENT 2

**ADEC CONTAMINATED MEDIA TRANSPORT AND TREATMENT OR
DISPOSAL APPROVAL FORMS**



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention Preparedness and Response Programs**

Contaminated Media Transport and Treatment or Disposal Approval Form

HAZARD ID # or SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL		
ADEC File # 2320.38.023	1968 Pipeline Spill		
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION			
Former Drift River Terminal			
CURRENT PHYSICAL LOCATION OF MEDIA		SOURCE OF THE CONTAMINATION (DAY TANK, FIRE TRAINING PIT, LUST, ETC.)	
4831 Fairbanks Street, Unit C, Anchorage, AK 99503		WP-6 and WP-8	
CONTAMINANTS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED	
Crude Oil	0.34 gal (2-22 oz 1.5in x 29in absorbs)	26 September 2021	
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)			
N/a for disposal only.			
COMMENTS OR OTHER IMPORTANT INFORMATION			
2 (22 oz, 1.5 in. x 29 in) absorbent socks were installed in WP-6 and WP-8 that contain crude oil. Absorbent wipes were used to wipe down oil water interface probe and water level meter. Approximately 0.34 gallon of oily water mixture from absorbs/wipes.			

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
US Ecology	20400 Lemley Road, Grand View, ID 83624 (208-834-7275)
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER
Harvest Alaska, LLC	35350 Kalifornsky Beach Rd. Kenai, AK 99611 99503 (907) 335-7475
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER
US Ecology/Shawn Tucker	619 East Ship Creek Avenue, Suite 309 Anchorage, AK 99501 (907) 646-5050

*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Martin Mylet

Name of the Person Requesting Approval (printed)

Signature

Martin Mylet

Digitally signed by Martin Mylet
DN: C=US,
E=martin.mylet@westonsolutions.com,
O=Weston Solutions, CN=Martin Mylet
Reason: I am approving this document
Date: 2022.03.14 13:00:08-08'00'

Project Manager/Weston Solutions

Title/Association

14MAR2022

Date

907-343-2708

Phone Number

-----DEC USE ONLY-----

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Jessica Hall

DEC Project Manager Name (printed)

Jessica Hall

Signature

Digitally signed by Jessica Hall
Date: 2022.03.18 09:04:32 -08'00'

Environmental Program Specialist III

Project Manager Title

3/18/2022

Date

907-269-7553

Phone Number

Instructions to Complete

Contaminated Media Transport and Treatment or Disposal Approval Form

The Alaska Department of Environmental Conservation (DEC) must approve the movement or disposal of contaminated soil and water from a site in accordance with 18 Alaska Administrative Code (AAC) 75.325(i), 18 AAC 75.370(b), and 18 AAC 78.274(b). The *Contaminated Media Transport and Treatment or Disposal Approval Form* should be used to document this approval. Soil treatment facilities regulated under 18 AAC 75.365 are required by their Operations Plans to only accept contaminated soil for which an approval form has been signed by a DEC project manager.

Site information can be found on the Contaminated Site Database (www.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search/) or the Spills Database (<http://dec.alaska.gov/Applications/SPAR/PublicMVC/PERP/SpillSearch>).

Instructions to Complete:

1. **Hazard ID or Spill ID #:** For a contaminated site, the Hazard ID can be found on the Contaminated Sites Database. For a spill, the Spill ID can be found in the subject line of letters from DEC or the Spills Database. If the waste originates from multiple sites, all Hazard IDs or Spill IDs must be listed.
2. **Name of Contaminated Site or Spill:** For a contaminated site, the official site name can be found on the Contaminated Sites Database. For a spill, the official name of the spill is found in the subject line of letters from DEC or the Spills Database.
3. **Contaminated Site or Spill Location – Address or Other Appropriate Description:** This address or description captures the origin of the contaminated media or the location of the spill. For a contaminated site, the address or other appropriate description can be found on the Contaminated Sites Database. For a spill, this can be found on the Spill Report or the Spills Database.
4. **Current Physical Location of the Media:** Provide the physical location where the contaminated media (soil, water, etc.) is currently stored. This location may be the same as location provided in the “Contaminated Site or Spill Location”, or it could be a hazardous waste facility or other location/staging area agreed upon in the DEC-approved work plan.
5. **Source of Contamination (Day Tank, Fire Training Pit, LUST, etc.):** List all sources which contributed to the contamination in the media being transported. Sources can include previous releases that have come along. If the source is unknown, state “Unknown”.
6. **Contaminants of Concern (CoCs):** List all contaminants detected above the most stringent Method 2 Tables B1 and B2 soil cleanup levels in 18 AAC 75.341(c) and (d), the Table C groundwater cleanup levels in 18 AAC 75.345, and other applicable action levels (e.g., TCLP results). Attach the laboratory data package for the contaminated media that is being disposed of and, if applicable, a data summary table or narrative to this form. Data gathered during site characterization activities may be sufficient to determine the CoCs. There are situations in which generator knowledge of the contaminant source may be accepted by a treatment or disposal facility in lieu of analytical sample results, such as, diesel-impacted media from a heating oil tank. If you are using generator knowledge in lieu of analytical sample results, include a statement which documents this knowledge in the Comments section.

7. **Estimated Volume:** Include the total volume of contaminated media to be transported; for instance, “Nine 55-gallon drums” or “25 cubic yards of soil.”
8. **Date(s) Generated:** Provide the date the media was generated (e.g., excavated, pumped out of the ground, etc.). If the media was generated over multiple days, list the range of dates.
9. **Post Treatment Analysis Required (such as GRO, DRO, RRO, VOCs, PAHs, metals, PFAS, chlorinated solvents, etc.):** Provide the list of all contaminants that exceed the most stringent Method 2 cleanup levels. For DEC-approved soil treatment facilities in Alaska, specific post treatment analyses will be determined by the facility based upon the contaminants and requirements of their Operations Plan. If the media are being transported to a landfill or permitted liquid waste facility without off-site treatment, include “Not Applicable”.
10. **Comments or Other Important Information:** Provide any other information which needs to be conveyed.
 - a. If generator knowledge of the CoCs is being used in lieu of sample analytical results, an explanation needs to be provided in this field.
 - b. If the material is going to be placed in a landfill in Alaska, include a statement that the landfill has agreed to accept the material and provide the contact information for the landfill point of contact. If the material is going to be placed in a Class 2 or 3 landfill, attach the DEC Solid Waste Program’s approval letter to this form.
 - c. If the media is going to an intermediate location or facility prior to its final destination, describe the complete transportation route with intermediate locations in this field.
11. **Treatment Facility, Landfill, and/or Final Destination of Media:** Include the name of the facility, landfill, or the final destination of the media. A list of DEC-approved Alaskan soil treatment facilities is available at www.dec.alaska.gov/spar/csp/offsite-remediation/. If multiple treatment facilities will be used, use separate forms to document what media will go to which facility. For material that will go to a waste transfer facility prior to disposal at another facility, the final destination should be listed.
 - a. **Physical Address/Phone Number:** Provide the physical location and telephone number of the facility, landfill, or the final destination of the media.
12. **Responsible Party:** Provide the name of the party responsible for the contaminated site or spill.
 - a. **Address/Phone Number:** Provide the mailing address and telephone number of the responsible party.
13. **Waste Management Co./Organizer:** Provide the name of company or person shipping and/or organizing the shipment of the media.
 - a. **Address/Phone Number:** Provide the mailing address and telephone number of the waste management company or organizer.

Submit this completed form along with all necessary attachments to the assigned DEC project manager for approval, or contact the Contaminated Sites Program at (907) 269-7558 or the Prevention, Preparedness and Response Program at (907) 269-7557.



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention Preparedness and Response Programs**

Contaminated Media Transport and Treatment or Disposal Approval Form

HAZARD ID # or SPILL ID #		NAME OF CONTAMINATED SITE OR SPILL	
ADEC File # 2320.38.023		1968 Pipeline Spill	
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION			
Former Drift River Terminal			
CURRENT PHYSICAL LOCATION OF MEDIA		SOURCE OF THE CONTAMINATION (DAY TANK, FIRE TRAINING PIT, LUST, ETC.)	
4831 Fairbanks Street, Unit C, Anchorage AK, 99503		WP1 through WP8	
CONTAMINANTS OF CONCERN		ESTIMATED VOLUME	DATE(S) GENERATED
Crude oil, btex, naphthalene		0.5 gallon	26 September 2021
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)			
None required disposal only.			
COMMENTS OR OTHER IMPORTANT INFORMATION			
0.5 gallon of rinse water (distilled water/alconox)/oily mixture from decontamination of oil water interface probe and water level meter used to gauge WP1 through WP8.			

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
US Ecology	2020 Viking Drive, Anchorage, AK 99501 (907) 258-1558
RESPONSIBLE PARTY	ADDRESS/PHONE NUMBER
Harvest Alaska, LLC	35350 Kalifornsky Beach Rd. Kenai, AK 99611 99503 (907) 335-7475
WASTE MANAGEMENT CO. / ORGANIZER	ADDRESS/PHONE NUMBER
US Ecology/ Shaun Tucker	619 East Ship Creek Avenue, Suite 309 Anchorage, AK 99501 (907) 646-5050

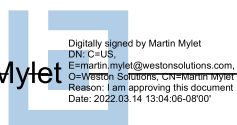
*Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.

Martin Mylet

Name of the Person Requesting Approval (printed)

Signature

Martin Mylet



Project Manager/Weston Solutions

Title/Association

14MAR2022

Date

907-343-2708

Phone Number

-----DEC USE ONLY-----

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Jessica Hall

DEC Project Manager Name (printed)

Jessica Hall

Signature

Digitally signed by Jessica Hall
Date: 2022.03.18 09:03:24 -08'00'

Environmental Program Specialist III

Project Manager Title

3/18/2022

Date

907-269-7553

Phone Number

Instructions to Complete

Contaminated Media Transport and Treatment or Disposal Approval Form

The Alaska Department of Environmental Conservation (DEC) must approve the movement or disposal of contaminated soil and water from a site in accordance with 18 Alaska Administrative Code (AAC) 75.325(i), 18 AAC 75.370(b), and 18 AAC 78.274(b). The *Contaminated Media Transport and Treatment or Disposal Approval Form* should be used to document this approval. Soil treatment facilities regulated under 18 AAC 75.365 are required by their Operations Plans to only accept contaminated soil for which an approval form has been signed by a DEC project manager.

Site information can be found on the Contaminated Site Database (www.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search/) or the Spills Database (<http://dec.alaska.gov/Applications/SPAR/PublicMVC/PERP/SpillSearch>).

Instructions to Complete:

1. **Hazard ID or Spill ID #:** For a contaminated site, the Hazard ID can be found on the Contaminated Sites Database. For a spill, the Spill ID can be found in the subject line of letters from DEC or the Spills Database. If the waste originates from multiple sites, all Hazard IDs or Spill IDs must be listed.
2. **Name of Contaminated Site or Spill:** For a contaminated site, the official site name can be found on the Contaminated Sites Database. For a spill, the official name of the spill is found in the subject line of letters from DEC or the Spills Database.
3. **Contaminated Site or Spill Location – Address or Other Appropriate Description:** This address or description captures the origin of the contaminated media or the location of the spill. For a contaminated site, the address or other appropriate description can be found on the Contaminated Sites Database. For a spill, this can be found on the Spill Report or the Spills Database.
4. **Current Physical Location of the Media:** Provide the physical location where the contaminated media (soil, water, etc.) is currently stored. This location may be the same as location provided in the “Contaminated Site or Spill Location”, or it could be a hazardous waste facility or other location/staging area agreed upon in the DEC-approved work plan.
5. **Source of Contamination (Day Tank, Fire Training Pit, LUST, etc.):** List all sources which contributed to the contamination in the media being transported. Sources can include previous releases that have come along. If the source is unknown, state “Unknown”.
6. **Contaminants of Concern (CoCs):** List all contaminants detected above the most stringent Method 2 Tables B1 and B2 soil cleanup levels in 18 AAC 75.341(c) and (d), the Table C groundwater cleanup levels in 18 AAC 75.345, and other applicable action levels (e.g., TCLP results). Attach the laboratory data package for the contaminated media that is being disposed of and, if applicable, a data summary table or narrative to this form. Data gathered during site characterization activities may be sufficient to determine the CoCs. There are situations in which generator knowledge of the contaminant source may be accepted by a treatment or disposal facility in lieu of analytical sample results, such as, diesel-impacted media from a heating oil tank. If you are using generator knowledge in lieu of analytical sample results, include a statement which documents this knowledge in the Comments section.

7. **Estimated Volume:** Include the total volume of contaminated media to be transported; for instance, “Nine 55-gallon drums” or “25 cubic yards of soil.”
8. **Date(s) Generated:** Provide the date the media was generated (e.g., excavated, pumped out of the ground, etc.). If the media was generated over multiple days, list the range of dates.
9. **Post Treatment Analysis Required (such as GRO, DRO, RRO, VOCs, PAHs, metals, PFAS, chlorinated solvents, etc.):** Provide the list of all contaminants that exceed the most stringent Method 2 cleanup levels. For DEC-approved soil treatment facilities in Alaska, specific post treatment analyses will be determined by the facility based upon the contaminants and requirements of their Operations Plan. If the media are being transported to a landfill or permitted liquid waste facility without off-site treatment, include “Not Applicable”.
10. **Comments or Other Important Information:** Provide any other information which needs to be conveyed.
 - a. If generator knowledge of the CoCs is being used in lieu of sample analytical results, an explanation needs to be provided in this field.
 - b. If the material is going to be placed in a landfill in Alaska, include a statement that the landfill has agreed to accept the material and provide the contact information for the landfill point of contact. If the material is going to be placed in a Class 2 or 3 landfill, attach the DEC Solid Waste Program’s approval letter to this form.
 - c. If the media is going to an intermediate location or facility prior to its final destination, describe the complete transportation route with intermediate locations in this field.
11. **Treatment Facility, Landfill, and/or Final Destination of Media:** Include the name of the facility, landfill, or the final destination of the media. A list of DEC-approved Alaskan soil treatment facilities is available at www.dec.alaska.gov/spar/csp/offsite-remediation/. If multiple treatment facilities will be used, use separate forms to document what media will go to which facility. For material that will go to a waste transfer facility prior to disposal at another facility, the final destination should be listed.
 - a. **Physical Address/Phone Number:** Provide the physical location and telephone number of the facility, landfill, or the final destination of the media.
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13. **Waste Management Co./Organizer:** Provide the name of company or person shipping and/or organizing the shipment of the media.
 - a. **Address/Phone Number:** Provide the mailing address and telephone number of the waste management company or organizer.

Submit this completed form along with all necessary attachments to the assigned DEC project manager for approval, or contact the Contaminated Sites Program at (907) 269-7558 or the Prevention, Preparedness and Response Program at (907) 269-7557.

ATTACHMENT 3

**LABORATORY ANALYTICAL RESULTS, ADEC CHECKLIST, AND
QAR MEMO**

LABORATORY ANALYTICAL RESULTS



Laboratory Report of Analysis

To: Harvest Alaska, LLC
425 G Street, Suite 300
Anchorage, AK 99501
(907)276-6610

Report Number: **1216347**

Client Project: **Drift River Terminal**

Dear Martin Mylet,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Print Date: 10/19/2021 10:23:43AM

Case Narrative

SGS Client: **Harvest Alaska, LLC**
SGS Project: **1216347**
Project Name/Site: **Drift River Terminal**
Project Contact: **Martin Mylet**

Refer to sample receipt form for information on sample condition.

GW-DRT-WP3-092621-06 (1216347001) PS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. Sample extracted as PS/BMS/BMSD and results confirm.

GW-DRT-WP22-092621-05 (1216347004) PS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. The sample was re-extracted outside of hold time to confirm results and results are comparable. In-hold data is reported.

8260D - Cyclohexane recovery is over range, however the dilution analyzed past hold confirms original in hold data.

GW-DRT-WP2-092621-04 (1216347005) PS

8260D - Cyclohexane recovery is over range, however the dilution analyzed past hold confirms original in hold data.

GW-DRT-WP7-092621-03 (1216347006) PS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. The sample was re-extracted outside of hold time to confirm results and results are comparable. In-hold data is reported.

8260D - Cyclohexane recovery is over range, however the dilution analyzed past hold confirms original in hold data.

GW-DRT-WP1-092621-02 (1216347007) PS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. The sample was re-extracted outside of hold time to confirm results and results are comparable. In-hold data is reported.

GW-DRT-WP5-092621-01 (1216347008) PS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. The sample was re-extracted outside of hold time to confirm results and results are comparable. In-hold data is reported.

GW-DRT-WP3-0...(1216347001BMS) (1216347002) BMS

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. Sample extracted as PS/BMS/BMSD and results confirm.

8270D SIM - PAH BMS recoveries for multiple analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

GW-DRT-WP3-...(1216347001BMSD) (1216347003) BMSD

8270D SIM - PAH surrogate recovery for fluoranthene-d10 does not meet QC criteria. Sample extracted as PS/BMS/BMSD and results confirm.

8270D SIM - PAH BMSD recoveries for multiple analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

8270D SIM - PAH BMS/BMSD RPDs for fluoranthene, pyrene, benzo(a)anthracene and chrysene do not meet QC criteria. These analytes are not detected above the LOQ in the parent sample.

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
8270D SIM LV (PAH)				
1216347004	GW-DRT-WP22-092621-05	XMS12936	Benzo(a)Anthracene	SP
1216347005	GW-DRT-WP2-092621-04	XMS12928	Chrysene	RP
1216347006	GW-DRT-WP7-092621-03	XMS12936	Benzo(a)Anthracene	SP
1216347007	GW-DRT-WP1-092621-02	XMS12936	Benzo(a)Anthracene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 10/19/2021 10:23:46AM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
GW-DRT-WP3-092621-06	1216347001	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP3-0...(1216347001B	1216347002	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP3-...(1216347001BM	1216347003	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP22-092621-05	1216347004	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP2-092621-04	1216347005	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP7-092621-03	1216347006	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP1-092621-02	1216347007	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
GW-DRT-WP5-092621-01	1216347008	09/26/2021	09/27/2021	Water (Surface, Eff., Ground)
TB1	1216347009	09/21/2021	09/27/2021	Water (Surface, Eff., Ground)

Method

8270D SIM LV (PAH)
 SW8260D
 SW8260D

Method Description

8270 PAH SIM GC/MS LV
 Volatile Organic Compounds (W)
 Volatile Organic Compounds(W)Custom List

Detectable Results Summary

Client Sample ID: **GW-DRT-WP22-092621-05**

Lab Sample ID: 1216347004

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.162	ug/L
2-Methylnaphthalene	0.158	ug/L
Benzo(a)Anthracene	0.0201J	ug/L
Fluorene	0.0300J	ug/L
Naphthalene	0.487	ug/L
Phenanthrene	0.0577	ug/L
Pyrene	0.0288J	ug/L

Volatile GC/MS

1,2,4-Trimethylbenzene	1.94	ug/L
1,3,5-Trimethylbenzene	0.570J	ug/L
Benzene	19.2	ug/L
Cyclohexane	219	ug/L
Isopropylbenzene (Cumene)	0.720J	ug/L
Naphthalene	0.850J	ug/L
n-hexane	4.08	ug/L
n-Propylbenzene	0.450J	ug/L
P & M -Xylene	8.24	ug/L
Toluene	0.590J	ug/L
Xylenes (total)	8.24	ug/L

Client Sample ID: **GW-DRT-WP2-092621-04**

Lab Sample ID: 1216347005

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.410	ug/L
2-Methylnaphthalene	0.471	ug/L
Anthracene	0.359	ug/L
Benzo(a)Anthracene	0.162	ug/L
Benzo[g,h,i]perylene	0.0868	ug/L
Chrysene	0.218	ug/L
Naphthalene	0.677	ug/L
Phenanthrene	0.554	ug/L
Pyrene	0.305	ug/L

Volatile GC/MS

1,2,4-Trimethylbenzene	2.01	ug/L
1,3,5-Trimethylbenzene	0.570J	ug/L
Benzene	20.3	ug/L
Cyclohexane	218	ug/L
Isopropylbenzene (Cumene)	0.750J	ug/L
Naphthalene	0.900J	ug/L
n-hexane	3.82	ug/L
n-Propylbenzene	0.450J	ug/L
P & M -Xylene	8.65	ug/L
Toluene	0.600J	ug/L
Xylenes (total)	8.65	ug/L

Print Date: 10/19/2021 10:23:50AM

Detectable Results Summary

Client Sample ID: **GW-DRT-WP7-092621-03**

Lab Sample ID: 1216347006

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.399	ug/L
2-Methylnaphthalene	0.455	ug/L
Benzo(a)Anthracene	0.0145J	ug/L
Chrysene	0.0551	ug/L
Fluorene	0.0553	ug/L
Naphthalene	0.752	ug/L
Phenanthrene	0.0983	ug/L

Volatile GC/MS

1,2,4-Trimethylbenzene	5.43	ug/L
1,3,5-Trimethylbenzene	2.11	ug/L
Benzene	25.4	ug/L
Cyclohexane	682	ug/L
Ethylbenzene	0.380J	ug/L
Isopropylbenzene (Cumene)	2.69	ug/L
Naphthalene	1.14	ug/L
n-hexane	16.1	ug/L
n-Propylbenzene	2.13	ug/L
P & M -Xylene	25.4	ug/L
sec-Butylbenzene	0.640J	ug/L
Toluene	1.35	ug/L
Xylenes (total)	25.4	ug/L

Client Sample ID: **GW-DRT-WP1-092621-02**

Lab Sample ID: 1216347007

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	1.94	ug/L
2-Methylnaphthalene	2.15	ug/L
Anthracene	0.170	ug/L
Benzo(a)Anthracene	0.0605	ug/L
Benzo[g,h,i]perylene	0.0493J	ug/L
Chrysene	0.272	ug/L
Fluorene	0.336	ug/L
Naphthalene	4.24	ug/L
Phenanthrene	0.348	ug/L
Pyrene	0.167	ug/L

Volatile GC/MS

1,2,4-Trimethylbenzene	11.6	ug/L
1,3,5-Trimethylbenzene	2.17	ug/L
Benzene	25.9	ug/L
Cyclohexane	40.6	ug/L
Ethylbenzene	0.550J	ug/L
Isopropylbenzene (Cumene)	3.22	ug/L
Naphthalene	8.51	ug/L
n-Propylbenzene	2.84	ug/L
P & M -Xylene	19.7	ug/L
sec-Butylbenzene	1.01	ug/L
Xylenes (total)	19.7	ug/L

Print Date: 10/19/2021 10:23:50AM

Detectable Results Summary

Client Sample ID: **GW-DRT-WP5-092621-01**

Lab Sample ID: 1216347008

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.0186J	ug/L
2-Methylnaphthalene	0.0217J	ug/L
Naphthalene	0.0440J	ug/L
Phenanthrene	0.0211J	ug/L

Print Date: 10/19/2021 10:23:50AM



Results of GW-DRT-WP3-092621-06

Client Sample ID: **GW-DRT-WP3-092621-06**
 Client Project ID: **Drift River Terminal**
 Lab Sample ID: 1216347001
 Lab Project ID: 1216347

Collection Date: 09/26/21 15:28
 Received Date: 09/27/21 12:30
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
2-Methylnaphthalene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Acenaphthene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Acenaphthylene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Anthracene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Benzo(a)Anthracene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Benzo[a]pyrene	0.00960 U	0.0192	0.00596	ug/L	1		10/01/21 23:41
Benzo[b]Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Benzo[g,h,i]perylene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Benzo[k]fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Chrysene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Dibenzo[a,h]anthracene	0.00960 U	0.0192	0.00596	ug/L	1		10/01/21 23:41
Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Fluorene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Indeno[1,2,3-c,d] pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Naphthalene	0.0481 U	0.0962	0.0298	ug/L	1		10/01/21 23:41
Phenanthrene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/01/21 23:41
Surrogates							
2-Methylnaphthalene-d10 (surr)	60.6	42-86		%	1		10/01/21 23:41
Fluoranthene-d10 (surr)	41.2 *	50-97		%	1		10/01/21 23:41

Batch Information

Analytical Batch: XMS12928
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: LAW
 Analytical Date/Time: 10/01/21 23:41
 Container ID: 1216347001-A

Prep Batch: XXX45639
 Prep Method: SW3535A
 Prep Date/Time: 09/29/21 11:00
 Prep Initial Wt./Vol.: 260 mL
 Prep Extract Vol: 1 mL



Results of **GW-DRT-WP3-092621-06**

Client Sample ID: **GW-DRT-WP3-092621-06**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347001
Lab Project ID: 1216347

Collection Date: 09/26/21 15:28
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.200 U	0.400	0.120	ug/L	1		10/02/21 18:46
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/02/21 18:46
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/02/21 18:46
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		10/02/21 18:46
Toluene	0.500 U	1.00	0.310	ug/L	1		10/02/21 18:46
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		10/02/21 18:46
Surrogates							
1,2-Dichloroethane-D4 (surr)	107	81-118		%	1		10/02/21 18:46
4-Bromofluorobenzene (surr)	108	85-114		%	1		10/02/21 18:46
Toluene-d8 (surr)	95.4	89-112		%	1		10/02/21 18:46

Batch Information

Analytical Batch: VMS21236
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/02/21 18:46
Container ID: 1216347001-C

Prep Batch: VXX37954
Prep Method: SW5030B
Prep Date/Time: 10/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of GW-DRT-WP22-092621-05

Client Sample ID: **GW-DRT-WP22-092621-05**
 Client Project ID: **Drift River Terminal**
 Lab Sample ID: 1216347004
 Lab Project ID: 1216347

Collection Date: 09/26/21 15:00
 Received Date: 09/27/21 12:30
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.162	0.0532	0.0160	ug/L	1		10/02/21 00:42
2-Methylnaphthalene	0.158	0.0532	0.0160	ug/L	1		10/02/21 00:42
Acenaphthene	0.0266 U	0.0532	0.0160	ug/L	1		10/02/21 00:42
Acenaphthylene	0.0266 U	0.0532	0.0160	ug/L	1		10/02/21 00:42
Anthracene	0.0266 U	0.0532	0.0160	ug/L	1		10/02/21 00:42
Benzo(a)Anthracene	0.0201 J	0.0532	0.0160	ug/L	1		10/05/21 19:38
Benzo[a]pyrene	0.0107 U	0.0213	0.00660	ug/L	1		10/05/21 19:38
Benzo[b]Fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Benzo[g,h,i]perylene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Benzo[k]fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Chrysene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Dibenzo[a,h]anthracene	0.0107 U	0.0213	0.00660	ug/L	1		10/05/21 19:38
Fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Fluorene	0.0300 J	0.0532	0.0160	ug/L	1		10/02/21 00:42
Indeno[1,2,3-c,d] pyrene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 19:38
Naphthalene	0.487	0.106	0.0330	ug/L	1		10/02/21 00:42
Phenanthrene	0.0577	0.0532	0.0160	ug/L	1		10/02/21 00:42
Pyrene	0.0288 J	0.0532	0.0160	ug/L	1		10/05/21 19:38
Surrogates							
2-Methylnaphthalene-d10 (surr)	50.3	42-86		%	1		10/02/21 00:42
Fluoranthene-d10 (surr)	49.3	* 50-97		%	1		10/05/21 19:38

Batch Information

Analytical Batch: XMS12928
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: LAW
 Analytical Date/Time: 10/02/21 00:42
 Container ID: 1216347004-A

Prep Batch: XXX45639
 Prep Method: SW3535A
 Prep Date/Time: 09/29/21 11:00
 Prep Initial Wt./Vol.: 235 mL
 Prep Extract Vol: 1 mL

Analytical Batch: XMS12936
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: LAW
 Analytical Date/Time: 10/05/21 19:38
 Container ID: 1216347004-A

Prep Batch: XXX45639
 Prep Method: SW3535A
 Prep Date/Time: 09/29/21 11:00
 Prep Initial Wt./Vol.: 235 mL
 Prep Extract Vol: 1 mL



Results of **GW-DRT-WP22-092621-05**

Client Sample ID: **GW-DRT-WP22-092621-05**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347004
Lab Project ID: 1216347

Collection Date: 09/26/21 15:00
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trimethylbenzene	1.94	1.00	0.310	ug/L	1		10/09/21 00:02
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		10/09/21 00:02
1,2-Dichloroethane	0.250 U	0.500	0.200	ug/L	1		10/09/21 00:02
1,3,5-Trimethylbenzene	0.570 J	1.00	0.310	ug/L	1		10/09/21 00:02
Benzene	19.2	0.400	0.120	ug/L	1		10/09/21 00:02
Cyclohexane	219	1.00	0.310	ug/L	1		10/09/21 00:02
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:02
Isopropylbenzene (Cumene)	0.720 J	1.00	0.310	ug/L	1		10/09/21 00:02
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		10/09/21 00:02
Naphthalene	0.850 J	1.00	0.310	ug/L	1		10/09/21 00:02
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:02
n-hexane	4.08	1.00	0.310	ug/L	1		10/09/21 00:02
n-Propylbenzene	0.450 J	1.00	0.310	ug/L	1		10/09/21 00:02
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:02
P & M -Xylene	8.24	2.00	0.620	ug/L	1		10/09/21 00:02
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:02
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:02
Toluene	0.590 J	1.00	0.310	ug/L	1		10/09/21 00:02
Xylenes (total)	8.24	3.00	1.00	ug/L	1		10/09/21 00:02

Surrogates

1,2-Dichloroethane-D4 (surr)	100	81-118		%	1		10/09/21 00:02
4-Bromofluorobenzene (surr)	100	85-114		%	1		10/09/21 00:02
Toluene-d8 (surr)	100	89-112		%	1		10/09/21 00:02

Batch Information

Analytical Batch: VMS21260
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/09/21 00:02
Container ID: 1216347004-C

Prep Batch: VXX37992
Prep Method: SW5030B
Prep Date/Time: 10/08/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **GW-DRT-WP2-092621-04**

Client Sample ID: **GW-DRT-WP2-092621-04**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347005
Lab Project ID: 1216347

Collection Date: 09/26/21 14:50
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.410	0.0481	0.0144	ug/L	1		10/02/21 01:03
2-Methylnaphthalene	0.471	0.0481	0.0144	ug/L	1		10/02/21 01:03
Acenaphthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Acenaphthylene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Anthracene	0.359	0.0481	0.0144	ug/L	1		10/02/21 01:03
Benzo(a)Anthracene	0.162	0.0481	0.0144	ug/L	1		10/02/21 01:03
Benzo[a]pyrene	0.00960 U	0.0192	0.00596	ug/L	1		10/02/21 01:03
Benzo[b]Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Benzo[g,h,i]perylene	0.0868	0.0481	0.0144	ug/L	1		10/02/21 01:03
Benzo[k]fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Chrysene	0.218	0.0481	0.0144	ug/L	1		10/02/21 01:03
Dibenzo[a,h]anthracene	0.00960 U	0.0192	0.00596	ug/L	1		10/02/21 01:03
Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Fluorene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Indeno[1,2,3-c,d] pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:03
Naphthalene	0.677	0.0962	0.0298	ug/L	1		10/02/21 01:03
Phenanthrene	0.554	0.0481	0.0144	ug/L	1		10/02/21 01:03
Pyrene	0.305	0.0481	0.0144	ug/L	1		10/02/21 01:03
Surrogates							
2-Methylnaphthalene-d10 (surr)	61.9	42-86		%	1		10/02/21 01:03
Fluoranthene-d10 (surr)	53.4	50-97		%	1		10/02/21 01:03

Batch Information

Analytical Batch: XMS12928
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 01:03
Container ID: 1216347005-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL



Results of GW-DRT-WP2-092621-04

Client Sample ID: **GW-DRT-WP2-092621-04**
 Client Project ID: **Drift River Terminal**
 Lab Sample ID: 1216347005
 Lab Project ID: 1216347

Collection Date: 09/26/21 14:50
 Received Date: 09/27/21 12:30
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trimethylbenzene	2.01	1.00	0.310	ug/L	1		10/09/21 00:16
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		10/09/21 00:16
1,2-Dichloroethane	0.250 U	0.500	0.200	ug/L	1		10/09/21 00:16
1,3,5-Trimethylbenzene	0.570 J	1.00	0.310	ug/L	1		10/09/21 00:16
Benzene	20.3	0.400	0.120	ug/L	1		10/09/21 00:16
Cyclohexane	218	1.00	0.310	ug/L	1		10/09/21 00:16
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:16
Isopropylbenzene (Cumene)	0.750 J	1.00	0.310	ug/L	1		10/09/21 00:16
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		10/09/21 00:16
Naphthalene	0.900 J	1.00	0.310	ug/L	1		10/09/21 00:16
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:16
n-hexane	3.82	1.00	0.310	ug/L	1		10/09/21 00:16
n-Propylbenzene	0.450 J	1.00	0.310	ug/L	1		10/09/21 00:16
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:16
P & M -Xylene	8.65	2.00	0.620	ug/L	1		10/09/21 00:16
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:16
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:16
Toluene	0.600 J	1.00	0.310	ug/L	1		10/09/21 00:16
Xylenes (total)	8.65	3.00	1.00	ug/L	1		10/09/21 00:16

Surrogates

1,2-Dichloroethane-D4 (surr)	105	81-118		%	1		10/09/21 00:16
4-Bromofluorobenzene (surr)	98	85-114		%	1		10/09/21 00:16
Toluene-d8 (surr)	98.9	89-112		%	1		10/09/21 00:16

Batch Information

Analytical Batch: VMS21260
 Analytical Method: SW8260D
 Analyst: MDT
 Analytical Date/Time: 10/09/21 00:16
 Container ID: 1216347005-C

Prep Batch: VXX37992
 Prep Method: SW5030B
 Prep Date/Time: 10/08/21 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of **GW-DRT-WP7-092621-03**

Client Sample ID: **GW-DRT-WP7-092621-03**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347006
Lab Project ID: 1216347

Collection Date: 09/26/21 14:35
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.399	0.0481	0.0144	ug/L	1		10/02/21 01:23
2-Methylnaphthalene	0.455	0.0481	0.0144	ug/L	1		10/02/21 01:23
Acenaphthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:23
Acenaphthylene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:23
Anthracene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 01:23
Benzo(a)Anthracene	0.0145 J	0.0481	0.0144	ug/L	1		10/05/21 19:58
Benzo[a]pyrene	0.00960 U	0.0192	0.00596	ug/L	1		10/05/21 19:58
Benzo[b]Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Benzo[g,h,i]perylene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Benzo[k]fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Chrysene	0.0551	0.0481	0.0144	ug/L	1		10/05/21 19:58
Dibenzo[a,h]anthracene	0.00960 U	0.0192	0.00596	ug/L	1		10/05/21 19:58
Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Fluorene	0.0553	0.0481	0.0144	ug/L	1		10/02/21 01:23
Indeno[1,2,3-c,d] pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Naphthalene	0.752	0.0962	0.0298	ug/L	1		10/02/21 01:23
Phenanthrene	0.0983	0.0481	0.0144	ug/L	1		10/02/21 01:23
Pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 19:58
Surrogates							
2-Methylnaphthalene-d10 (surr)	53.9	42-86		%	1		10/02/21 01:23
Fluoranthene-d10 (surr)	47.2	* 50-97		%	1		10/05/21 19:58

Batch Information

Analytical Batch: XMS12928
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 01:23
Container ID: 1216347006-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS12936
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/05/21 19:58
Container ID: 1216347006-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL



Results of **GW-DRT-WP7-092621-03**

Client Sample ID: **GW-DRT-WP7-092621-03**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347006
Lab Project ID: 1216347

Collection Date: 09/26/21 14:35
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trimethylbenzene	5.43	1.00	0.310	ug/L	1		10/09/21 00:31
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		10/09/21 00:31
1,2-Dichloroethane	0.250 U	0.500	0.200	ug/L	1		10/09/21 00:31
1,3,5-Trimethylbenzene	2.11	1.00	0.310	ug/L	1		10/09/21 00:31
Benzene	25.4	0.400	0.120	ug/L	1		10/09/21 00:31
Cyclohexane	682	1.00	0.310	ug/L	1		10/09/21 00:31
Ethylbenzene	0.380 J	1.00	0.310	ug/L	1		10/09/21 00:31
Isopropylbenzene (Cumene)	2.69	1.00	0.310	ug/L	1		10/09/21 00:31
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		10/09/21 00:31
Naphthalene	1.14	1.00	0.310	ug/L	1		10/09/21 00:31
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:31
n-hexane	16.1	1.00	0.310	ug/L	1		10/09/21 00:31
n-Propylbenzene	2.13	1.00	0.310	ug/L	1		10/09/21 00:31
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:31
P & M -Xylene	25.4	2.00	0.620	ug/L	1		10/09/21 00:31
sec-Butylbenzene	0.640 J	1.00	0.310	ug/L	1		10/09/21 00:31
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:31
Toluene	1.35	1.00	0.310	ug/L	1		10/09/21 00:31
Xylenes (total)	25.4	3.00	1.00	ug/L	1		10/09/21 00:31

Surrogates

1,2-Dichloroethane-D4 (surr)	102	81-118		%	1		10/09/21 00:31
4-Bromofluorobenzene (surr)	99.5	85-114		%	1		10/09/21 00:31
Toluene-d8 (surr)	99.6	89-112		%	1		10/09/21 00:31

Batch Information

Analytical Batch: VMS21260
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/09/21 00:31
Container ID: 1216347006-C

Prep Batch: VXX37992
Prep Method: SW5030B
Prep Date/Time: 10/08/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **GW-DRT-WP1-092621-02**

Client Sample ID: **GW-DRT-WP1-092621-02**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347007
Lab Project ID: 1216347

Collection Date: 09/26/21 14:10
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	1.94	0.0532	0.0160	ug/L	1		10/02/21 01:44
2-Methylnaphthalene	2.15	0.0532	0.0160	ug/L	1		10/02/21 01:44
Acenaphthene	0.0266 U	0.0532	0.0160	ug/L	1		10/02/21 01:44
Acenaphthylene	0.0266 U	0.0532	0.0160	ug/L	1		10/02/21 01:44
Anthracene	0.170	0.0532	0.0160	ug/L	1		10/02/21 01:44
Benzo(a)Anthracene	0.0605	0.0532	0.0160	ug/L	1		10/05/21 20:19
Benzo[a]pyrene	0.0107 U	0.0213	0.00660	ug/L	1		10/05/21 20:19
Benzo[b]Fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 20:19
Benzo[g,h,i]perylene	0.0493 J	0.0532	0.0160	ug/L	1		10/05/21 20:19
Benzo[k]fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 20:19
Chrysene	0.272	0.0532	0.0160	ug/L	1		10/05/21 20:19
Dibenzo[a,h]anthracene	0.0107 U	0.0213	0.00660	ug/L	1		10/05/21 20:19
Fluoranthene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 20:19
Fluorene	0.336	0.0532	0.0160	ug/L	1		10/02/21 01:44
Indeno[1,2,3-c,d] pyrene	0.0266 U	0.0532	0.0160	ug/L	1		10/05/21 20:19
Naphthalene	4.24	0.106	0.0330	ug/L	1		10/02/21 01:44
Phenanthrene	0.348	0.0532	0.0160	ug/L	1		10/02/21 01:44
Pyrene	0.167	0.0532	0.0160	ug/L	1		10/05/21 20:19
Surrogates							
2-Methylnaphthalene-d10 (surr)	52.8	42-86		%	1		10/02/21 01:44
Fluoranthene-d10 (surr)	46.3	* 50-97		%	1		10/05/21 20:19

Batch Information

Analytical Batch: XMS12928
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 01:44
Container ID: 1216347007-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS12936
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/05/21 20:19
Container ID: 1216347007-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 235 mL
Prep Extract Vol: 1 mL



Results of **GW-DRT-WP1-092621-02**

Client Sample ID: **GW-DRT-WP1-092621-02**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347007
Lab Project ID: 1216347

Collection Date: 09/26/21 14:10
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trimethylbenzene	11.6	1.00	0.310	ug/L	1		10/09/21 00:46
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		10/09/21 00:46
1,2-Dichloroethane	0.250 U	0.500	0.200	ug/L	1		10/09/21 00:46
1,3,5-Trimethylbenzene	2.17	1.00	0.310	ug/L	1		10/09/21 00:46
Benzene	25.9	0.400	0.120	ug/L	1		10/09/21 00:46
Cyclohexane	40.6	1.00	0.310	ug/L	1		10/09/21 00:46
Ethylbenzene	0.550 J	1.00	0.310	ug/L	1		10/09/21 00:46
Isopropylbenzene (Cumene)	3.22	1.00	0.310	ug/L	1		10/09/21 00:46
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		10/09/21 00:46
Naphthalene	8.51	1.00	0.310	ug/L	1		10/09/21 00:46
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:46
n-hexane	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:46
n-Propylbenzene	2.84	1.00	0.310	ug/L	1		10/09/21 00:46
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:46
P & M -Xylene	19.7	2.00	0.620	ug/L	1		10/09/21 00:46
sec-Butylbenzene	1.01	1.00	0.310	ug/L	1		10/09/21 00:46
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:46
Toluene	0.500 U	1.00	0.310	ug/L	1		10/09/21 00:46
Xylenes (total)	19.7	3.00	1.00	ug/L	1		10/09/21 00:46

Surrogates

1,2-Dichloroethane-D4 (surr)	108	81-118		%	1		10/09/21 00:46
4-Bromofluorobenzene (surr)	99.3	85-114		%	1		10/09/21 00:46
Toluene-d8 (surr)	99.3	89-112		%	1		10/09/21 00:46

Batch Information

Analytical Batch: VMS21260
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/09/21 00:46
Container ID: 1216347007-C

Prep Batch: VXX37992
Prep Method: SW5030B
Prep Date/Time: 10/08/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **GW-DRT-WP5-092621-01**

Client Sample ID: **GW-DRT-WP5-092621-01**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347008
Lab Project ID: 1216347

Collection Date: 09/26/21 13:40
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.0186 J	0.0481	0.0144	ug/L	1		10/02/21 02:04
2-Methylnaphthalene	0.0217 J	0.0481	0.0144	ug/L	1		10/02/21 02:04
Acenaphthene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 02:04
Acenaphthylene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 02:04
Anthracene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 02:04
Benzo(a)Anthracene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Benzo[a]pyrene	0.00960 U	0.0192	0.00596	ug/L	1		10/05/21 20:39
Benzo[b]Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Benzo[g,h,i]perylene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Benzo[k]fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Chrysene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Dibenzo[a,h]anthracene	0.00960 U	0.0192	0.00596	ug/L	1		10/05/21 20:39
Fluoranthene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Fluorene	0.0240 U	0.0481	0.0144	ug/L	1		10/02/21 02:04
Indeno[1,2,3-c,d] pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Naphthalene	0.0440 J	0.0962	0.0298	ug/L	1		10/02/21 02:04
Phenanthrene	0.0211 J	0.0481	0.0144	ug/L	1		10/02/21 02:04
Pyrene	0.0240 U	0.0481	0.0144	ug/L	1		10/05/21 20:39
Surrogates							
2-Methylnaphthalene-d10 (surr)	61.3	42-86		%	1		10/02/21 02:04
Fluoranthene-d10 (surr)	27.6 *	50-97		%	1		10/05/21 20:39

Batch Information

Analytical Batch: XMS12928
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 02:04
Container ID: 1216347008-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS12936
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/05/21 20:39
Container ID: 1216347008-A

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 09/29/21 11:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL



Results of **GW-DRT-WP5-092621-01**

Client Sample ID: **GW-DRT-WP5-092621-01**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347008
Lab Project ID: 1216347

Collection Date: 09/26/21 13:40
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.200 U	0.400	0.120	ug/L	1		10/02/21 22:29
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/06/21 22:23
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/06/21 22:23
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		10/06/21 22:23
Toluene	0.500 U	1.00	0.310	ug/L	1		10/06/21 22:23
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		10/06/21 22:23

Surrogates

1,2-Dichloroethane-D4 (surr)	112	81-118		%	1		10/02/21 22:29
4-Bromofluorobenzene (surr)	107	85-114		%	1		10/02/21 22:29
Toluene-d8 (surr)	96	89-112		%	1		10/06/21 22:23

Batch Information

Analytical Batch: VMS21252
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 10/06/21 22:23
Container ID: 1216347008-D

Prep Batch: VXX37978
Prep Method: SW5030B
Prep Date/Time: 10/06/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21236
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/02/21 22:29
Container ID: 1216347008-C

Prep Batch: VXX37954
Prep Method: SW5030B
Prep Date/Time: 10/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of TB1

Client Sample ID: **TB1**
Client Project ID: **Drift River Terminal**
Lab Sample ID: 1216347009
Lab Project ID: 1216347

Collection Date: 09/21/21 00:00
Received Date: 09/27/21 12:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		10/04/21 17:46
1,2-Dichloroethane	0.250 U	0.500	0.200	ug/L	1		10/04/21 17:46
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Benzene	0.200 U	0.400	0.120	ug/L	1		10/04/21 17:46
Cyclohexane	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		10/04/21 17:46
Naphthalene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
n-hexane	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
o-Xylene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		10/04/21 17:46
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Toluene	0.500 U	1.00	0.310	ug/L	1		10/04/21 17:46
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		10/04/21 17:46

Surrogates

1,2-Dichloroethane-D4 (surr)	107	81-118	%	1		10/04/21 17:46
4-Bromofluorobenzene (surr)	106	85-114	%	1		10/04/21 17:46
Toluene-d8 (surr)	90.3	89-112	%	1		10/04/21 17:46

Batch Information

Analytical Batch: VMS21246
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 10/04/21 17:46
Container ID: 1216347009-A

Prep Batch: VXX37968
Prep Method: SW5030B
Prep Date/Time: 10/04/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1826503 [VXX/37954]

Blank Lab ID: 1639808

QC for Samples:

1216347001, 1216347008

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	109	85-114		%
Toluene-d8 (surr)	94.9	89-112		%

Batch Information

Analytical Batch: VMS21236
 Analytical Method: SW8260D
 Instrument: Agilent 7890-75MS
 Analyst: MDT
 Analytical Date/Time: 10/2/2021 4:08:00PM

Prep Batch: VXX37954
 Prep Method: SW5030B
 Prep Date/Time: 10/2/2021 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 10/19/2021 10:23:52AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1216347 [VXX37954]
 Blank Spike Lab ID: 1639809
 Date Analyzed: 10/02/2021 16:22

Spike Duplicate ID: LCSD for HBN 1216347 [VXX37954]
 Spike Duplicate Lab ID: 1639810
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216347001, 1216347008

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	30	29.0	97	30	29.1	97	(79-120)	0.31	(< 20)
Ethylbenzene	30	29.5	98	30	29.3	98	(79-121)	0.72	(< 20)
o-Xylene	30	29.8	99	30	29.3	98	(78-122)	1.40	(< 20)
P & M -Xylene	60	58.2	97	60	57.4	96	(80-121)	1.40	(< 20)
Toluene	30	28.9	96	30	28.6	95	(80-121)	1.00	(< 20)
Xylenes (total)	90	87.9	98	90	86.7	96	(79-121)	1.40	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		107	30		106	(81-118)	0.16	
4-Bromofluorobenzene (surr)	30		106	30		106	(85-114)	0.31	
Toluene-d8 (surr)	30		96	30		97	(89-112)	0.83	

Batch Information

Analytical Batch: VMS21236
 Analytical Method: SW8260D
 Instrument: Agilent 7890-75MS
 Analyst: MDT

Prep Batch: VXX37954
 Prep Method: SW5030B
 Prep Date/Time: 10/02/2021 06:00
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 10/19/2021 10:23:55AM



Billable Matrix Spike Summary

Original Sample ID: 1216347001
MS Sample ID: 1216347002 BMS
MSD Sample ID: 1216347003 BMSD

Analysis Date: 10/02/2021 18:46
Analysis Date: 10/03/2021 0:28
Analysis Date: 10/03/2021 0:43
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by SW8260D

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.200U	30.0	31.5	105	30.0	30.6	102	79-120	2.70	(< 20)
Ethylbenzene	0.500U	30.0	31.5	105	30.0	31.4	105	79-121	0.51	(< 20)
o-Xylene	0.500U	30.0	32.2	107	30.0	31.7	106	78-122	1.60	(< 20)
P & M -Xylene	1.00U	60.0	62.2	104	60.0	61.6	103	80-121	1.10	(< 20)
Toluene	0.500U	30.0	30.9	103	30.0	30.4	101	80-121	1.60	(< 20)
Xylenes (total)	1.50U	90.0	94.4	105	90.0	93.2	104	79-121	1.30	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	30.5	102	30.0	31.8	106	81-118	4.20	
4-Bromofluorobenzene (surr)		30.0	30.3	101	30.0	31.0	103	85-114	2.40	
Toluene-d8 (surr)		30.0	28.9	96	30.0	28.9	96	89-112	0.07	

Batch Information

Analytical Batch: VMS21236
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: MDT
Analytical Date/Time: 10/3/2021 12:28:00AM

Prep Batch: VXX37954
Prep Method: Volatiles Extraction 8240/8260
Prep Date/Time: 10/2/2021 6:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 10/19/2021 10:23:56AM

Method Blank

Blank ID: MB for HBN 1826612 [VXX/37968]
 Blank Lab ID: 1640363

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1216347009

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Cyclohexane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-hexane	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	100	81-118		%
4-Bromofluorobenzene (surr)	99.3	85-114		%
Toluene-d8 (surr)	97.3	89-112		%

Batch Information

Analytical Batch: VMS21246
 Analytical Method: SW8260D
 Instrument: Agilent 7890-75MS
 Analyst: JMG
 Analytical Date/Time: 10/4/2021 12:09:00PM

Prep Batch: VXX37968
 Prep Method: SW5030B
 Prep Date/Time: 10/4/2021 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 10/19/2021 10:23:58AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216347 [VXX37968]
 Blank Spike Lab ID: 1640364
 Date Analyzed: 10/04/2021 12:24

Spike Duplicate ID: LCSD for HBN 1216347 [VXX37968]
 Spike Duplicate Lab ID: 1640365
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216347009

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,2,4-Trimethylbenzene	30	29.4	98	30	29.6	99	(79-124)	0.83	(< 20)
1,2-Dibromoethane	30	29.5	99	30	29.8	100	(77-121)	1.00	(< 20)
1,2-Dichloroethane	30	26.6	89	30	28.3	94	(73-128)	6.30	(< 20)
1,3,5-Trimethylbenzene	30	29.9	100	30	30.0	100	(75-124)	0.30	(< 20)
Benzene	30	29.1	97	30	29.8	99	(79-120)	2.30	(< 20)
Cyclohexane	30	30.0	100	30	30.1	100	(70-130)	0.39	(< 20)
Ethylbenzene	30	30.1	100	30	30.1	100	(79-121)	0.14	(< 20)
Isopropylbenzene (Cumene)	30	30.6	102	30	30.7	102	(72-131)	0.35	(< 20)
Methyl-t-butyl ether	45	39.6	88	45	41.5	92	(71-124)	4.90	(< 20)
Naphthalene	30	29.6	99	30	30.8	103	(61-128)	3.90	(< 20)
n-Butylbenzene	30	26.7	89	30	27.3	91	(75-128)	2.50	(< 20)
n-hexane	30	27.4	92	30	28.8	96	(70-130)	4.80	(< 20)
n-Propylbenzene	30	29.8	99	30	29.3	98	(76-126)	1.60	(< 20)
o-Xylene	30	30.2	101	30	30.6	102	(78-122)	1.20	(< 20)
P & M -Xylene	60	59.9	100	60	60.6	101	(80-121)	1.00	(< 20)
sec-Butylbenzene	30	30.1	100	30	30.5	102	(77-126)	1.50	(< 20)
tert-Butylbenzene	30	29.6	99	30	30.0	100	(78-124)	1.20	(< 20)
Toluene	30	28.3	94	30	29.6	99	(80-121)	4.50	(< 20)
Xylenes (total)	90	90.1	100	90	91.2	101	(79-121)	1.10	(< 20)

Surrogates

1,2-Dichloroethane-D4 (surr)	30		99	30		103	(81-118)	4.50	
4-Bromofluorobenzene (surr)	30		98	30		98	(85-114)	0.22	
Toluene-d8 (surr)	30		94	30		98	(89-112)	4.70	

Batch Information

Analytical Batch: **VMS21246**
 Analytical Method: **SW8260D**
 Instrument: **Agilent 7890-75MS**
 Analyst: **JMG**

Prep Batch: **VXX37968**
 Prep Method: **SW5030B**
 Prep Date/Time: **10/04/2021 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1826677 [VXX/37978]
 Blank Lab ID: 1640678

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1216347008

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	111	85-114		%
Toluene-d8 (surr)	94.8	89-112		%

Batch Information

Analytical Batch: VMS21252
 Analytical Method: SW8260D
 Instrument: Agilent 7890-75MS
 Analyst: JMG
 Analytical Date/Time: 10/6/2021 2:48:00PM

Prep Batch: VXX37978
 Prep Method: SW5030B
 Prep Date/Time: 10/6/2021 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216347 [VXX37978]
 Blank Spike Lab ID: 1640679
 Date Analyzed: 10/06/2021 15:03

Spike Duplicate ID: LCSD for HBN 1216347 [VXX37978]
 Spike Duplicate Lab ID: 1640680
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216347008

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Ethylbenzene	30	29.9	100	30	29.3	98	(79-121)	1.80	(< 20)
o-Xylene	30	30.1	100	30	29.5	98	(78-122)	2.20	(< 20)
P & M -Xylene	60	59.4	99	60	58.5	98	(80-121)	1.50	(< 20)
Toluene	30	29.5	98	30	28.6	95	(80-121)	3.20	(< 20)
Xylenes (total)	90	89.5	100	90	88.0	98	(79-121)	1.70	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		107	30		108	(81-118)	0.60	
4-Bromofluorobenzene (surr)	30		107	30		108	(85-114)	1.70	
Toluene-d8 (surr)	30		97	30		96	(89-112)	0.40	

Batch Information

Analytical Batch: **VMS21252**
 Analytical Method: **SW8260D**
 Instrument: **Agilent 7890-75MS**
 Analyst: **JMG**

Prep Batch: **VXX37978**
 Prep Method: **SW5030B**
 Prep Date/Time: **10/06/2021 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1826800 [VXX/37992]
Blank Lab ID: 1641240

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216347004, 1216347005, 1216347006, 1216347007

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Cyclohexane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-hexane	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	107	81-118		%
4-Bromofluorobenzene (surr)	97.8	85-114		%
Toluene-d8 (surr)	99.5	89-112		%

Batch Information

Analytical Batch: VMS21260
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: MDT
Analytical Date/Time: 10/8/2021 10:07:00PM

Prep Batch: VXX37992
Prep Method: SW5030B
Prep Date/Time: 10/8/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/19/2021 10:24:07AM

Leaching Blank

Blank ID: LB for HBN 1826671 [TCLP/11426]
 Blank Lab ID: 1640657

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1216347004, 1216347005, 1216347006, 1216347007

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2-Dichloroethane	0.250U	0.500	0.200	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	81-118		%
4-Bromofluorobenzene (surr)	98.8	85-114		%
Toluene-d8 (surr)	99.5	89-112		%

Batch Information

Analytical Batch: VMS21260
 Analytical Method: SW8260D
 Instrument: VPA 780/5975 GC/MS
 Analyst: MDT
 Analytical Date/Time: 10/8/2021 11:47:00PM

Prep Batch: VXX37992
 Prep Method: SW5030B
 Prep Date/Time: 10/8/2021 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 10/19/2021 10:24:07AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216347 [VXX37992]
 Blank Spike Lab ID: 1641241
 Date Analyzed: 10/08/2021 22:21

Spike Duplicate ID: LCSD for HBN 1216347 [VXX37992]
 Spike Duplicate Lab ID: 1641242
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216347004, 1216347005, 1216347006, 1216347007

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,2,4-Trimethylbenzene	30	30.9	103	30	30.8	103	(79-124)	0.58	(< 20)
1,2-Dibromoethane	30	31.2	104	30	32.2	107	(77-121)	3.00	(< 20)
1,2-Dichloroethane	30	30.7	102	30	31.8	106	(73-128)	3.50	(< 20)
1,3,5-Trimethylbenzene	30	30.7	102	30	30.2	101	(75-124)	1.60	(< 20)
Benzene	30	30.8	103	30	31.3	104	(79-120)	1.70	(< 20)
Cyclohexane	30	31.2	104	30	30.3	101	(70-130)	2.80	(< 20)
Ethylbenzene	30	30.6	102	30	31.0	103	(79-121)	1.30	(< 20)
Isopropylbenzene (Cumene)	30	31.6	105	30	32.0	107	(72-131)	1.30	(< 20)
Methyl-t-butyl ether	45	49.0	109	45	51.3	114	(71-124)	4.60	(< 20)
Naphthalene	30	30.2	101	30	31.3	104	(61-128)	3.70	(< 20)
n-Butylbenzene	30	30.6	102	30	29.7	99	(75-128)	3.00	(< 20)
n-hexane	30	31.9	106	30	31.3	104	(70-130)	2.00	(< 20)
n-Propylbenzene	30	29.4	98	30	29.0	97	(76-126)	1.50	(< 20)
o-Xylene	30	31.3	104	30	31.7	106	(78-122)	1.20	(< 20)
P & M -Xylene	60	61.3	102	60	61.8	103	(80-121)	0.88	(< 20)
sec-Butylbenzene	30	30.1	100	30	29.3	98	(77-126)	2.80	(< 20)
tert-Butylbenzene	30	30.6	102	30	30.3	101	(78-124)	0.99	(< 20)
Toluene	30	29.9	100	30	30.2	101	(80-121)	1.20	(< 20)
Xylenes (total)	90	92.6	103	90	93.5	104	(79-121)	1.00	(< 20)

Surrogates

1,2-Dichloroethane-D4 (surr)	30		101	30		103	(81-118)	1.90	
4-Bromofluorobenzene (surr)	30		99	30		96	(85-114)	2.90	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.13	

Batch Information

Analytical Batch: **VMS21260**
 Analytical Method: **SW8260D**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **MDT**

Prep Batch: **VXX37992**
 Prep Method: **SW5030B**
 Prep Date/Time: **10/08/2021 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1826265 [XXX/45639]
Blank Lab ID: 1638801

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216347001, 1216347004, 1216347005, 1216347006, 1216347007, 1216347008

Results by 8270D SIM LV (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0196J	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	62.4	42-86		%
Fluoranthene-d10 (surr)	72.2	50-97		%

Batch Information

Analytical Batch: XMS12928
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: LAW
Analytical Date/Time: 10/1/2021 9:38:00PM

Prep Batch: XXX45639
Prep Method: SW3535A
Prep Date/Time: 9/29/2021 11:00:57AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/19/2021 10:24:12AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216347 [XXX45639]

Blank Spike Lab ID: 1638802

Date Analyzed: 10/01/2021 21:58

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216347001, 1216347004, 1216347005, 1216347006, 1216347007, 1216347008

Results by 8270D SIM LV (PAH)

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	2	1.32	66	(41-115)
2-Methylnaphthalene	2	1.28	64	(39-114)
Acenaphthene	2	1.44	72	(48-114)
Acenaphthylene	2	1.51	76	(35-121)
Anthracene	2	1.40	70	(53-119)
Benzo(a)Anthracene	2	1.41	70	(59-120)
Benzo[a]pyrene	2	1.52	76	(53-120)
Benzo[b]Fluoranthene	2	1.43	72	(53-126)
Benzo[g,h,i]perylene	2	1.72	86	(44-128)
Benzo[k]fluoranthene	2	1.56	78	(54-125)
Chrysene	2	1.51	75	(57-120)
Dibenzo[a,h]anthracene	2	1.71	85	(44-131)
Fluoranthene	2	1.36	68	(58-120)
Fluorene	2	1.45	73	(50-118)
Indeno[1,2,3-c,d] pyrene	2	1.66	83	(48-130)
Naphthalene	2	1.37	69	(43-114)
Phenanthrene	2	1.44	72	(53-115)
Pyrene	2	1.40	70	(53-121)

Surrogates

2-Methylnaphthalene-d10 (surr)	2		58	(42-86)
Fluoranthene-d10 (surr)	2		64	(50-97)

Batch Information

Analytical Batch: XMS12928

Analytical Method: 8270D SIM LV (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: LAW

Prep Batch: XXX45639

Prep Method: SW3535A

Prep Date/Time: 09/29/2021 11:00

Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Dupe Init Wt./Vol.: Extract Vol:



Billable Matrix Spike Summary

Original Sample ID: 1216347001
 MS Sample ID: 1216347002 BMS
 MSD Sample ID: 1216347003 BMSD

Analysis Date: 10/01/2021 23:41
 Analysis Date: 10/02/2021 0:01
 Analysis Date: 10/02/2021 0:22
 Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by 8270D SIM LV (PAH)

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.0240U	1.85	1.14	62	1.92	1.25	65	41-115	9.10	(< 20)
2-Methylnaphthalene	0.0240U	1.85	1.11	60	1.92	1.22	63	39-114	9.30	(< 20)
Acenaphthene	0.0240U	1.85	1.13	61	1.92	1.25	65	48-114	10.10	(< 20)
Acenaphthylene	0.0240U	1.85	1.26	68	1.92	1.36	71	35-121	7.30	(< 20)
Anthracene	0.0240U	1.85	.843	46 *	1.92	1.00	52 *	53-119	17.40	(< 20)
Benzo(a)Anthracene	0.0240U	1.85	.455	25 *	1.92	0.577	30 *	59-120	23.50 *	(< 20)
Benzo(a)pyrene	0.00960U	1.85	.301	16 *	1.92	0.335	17 *	53-120	10.60	(< 20)
Benzo(b)Fluoranthene	0.0240U	1.85	.323	17 *	1.92	0.384	20 *	53-126	17.30	(< 20)
Benzo(g,h,i)perylene	0.0240U	1.85	.266	14 *	1.92	0.255	13 *	44-128	4.20	(< 20)
Benzo(k)fluoranthene	0.0240U	1.85	.354	19 *	1.92	0.389	20 *	54-125	9.40	(< 20)
Chrysene	0.0240U	1.85	.382	21 *	1.92	0.470	24 *	57-120	20.70 *	(< 20)
Dibenzo(a,h)anthracene	0.00960U	1.85	.336	18 *	1.92	0.387	20 *	44-131	14.00	(< 20)
Fluoranthene	0.0240U	1.85	.677	37 *	1.92	0.842	44 *	58-120	21.60 *	(< 20)
Fluorene	0.0240U	1.85	1.06	57	1.92	1.20	62	50-118	11.70	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0240U	1.85	.232	13 *	1.92	0.252	13 *	48-130	8.10	(< 20)
Naphthalene	0.0481U	1.85	1.31	71	1.92	1.38	72	43-114	5.50	(< 20)
Phenanthrene	0.0240U	1.85	.92	50 *	1.92	1.07	56	53-115	15.40	(< 20)
Pyrene	0.0240U	1.85	.661	36 *	1.92	0.834	43 *	53-121	23.10 *	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		1.85	.974	53	1.92	1.09	57	42-86	11.40	
Fluoranthene-d10 (surr)		1.85	.626	34 *	1.92	0.792	41 *	50-97	23.30	

Batch Information

Analytical Batch: XMS12928
 Analytical Method: 8270D SIM LV (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: LAW
 Analytical Date/Time: 10/2/2021 12:01:00AM

Prep Batch: XXX45639
 Prep Method: 3535 Solid Phase Ext for 8270 PAH SIM LV
 Prep Date/Time: 9/29/2021 11:00:57AM
 Prep Initial Wt./Vol.: 270.00mL
 Prep Extract Vol: 1.00mL

Print Date: 10/19/2021 10:24:16AM



SGS North America Inc.
CHAIN OF CUSTODY RECORD

Profile #374969 JN

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CLIENT: Weston Solutions				Instructions: Sections 1 - 5 must be filled out Omissions may delay the				1216347 				Page ____ of ____									
CONTACT: M. Mylet				PHONE #: 907-343-2708 907-231-7902				Section 3													
PROJECT NAME: Drift River Terminal				PROJECT/PWSID/PERMIT#:				# CONTAINERS													
REPORTS TO:				E-MAIL: macth.mylet@weston				Analysis*				NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS									
INVOICE TO: Direct Bill: Harvest Alaska				QUOTE #:				MI (Multi-incremental)				REMARKS/LOC ID									
RESERVED for lab use		SAMPLE IDENTIFICATION		DATE mm/dd/yy		TIME HH:MM		MATRIX/MATRIX CODE		# CONTAINERS		Grab		BTEX P260 P		Retroleum VOC 8260 D *		PAH 8270 D			
1-3 AB		GW-DRT-WP3-092621-06		09/26/21		15:28		GW		15		Grab		✓		✓		✓		MS/MSD	
4 AB		GW-DRT-WP22-092621-05		09/26/21		15:00		GW		5						✓		✓			
5 AB		GW-DRT-WP2-092621-04		09/26/21		14:50		GW		5						✓		✓			
6 AB		GW-DRT-WP7-092621-03		09/26/21		14:35		GW		5						✓		✓			
7 AB		GW-DRT-WP1-092621-02		09/26/21		14:10		GW		5						✓		✓			
8 AB		GW-DRT-WP5-092621-01		09/26/21		13:40		GW		5		✓				✓		✓			
9 AC		PBI		9/21/21						3						✓					
Relinquished By: (1) 				Date 09/27/21		Time 12:30		Received By: 				Section 4		DOD Project? Yes (No)		Data Deliverable Requirements:					
Relinquished By: (2) 				Date		Time		Received By:				Requested Turnaround Time and/or Special Instructions: include cyclo-hexane, hexane, N and propylbenzene in the Petro-VOC analysis *VM.9260PCI									
Relinquished By: (3)				Date		Time		Received By:				Temp Blank °C: 1.8 D58				Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT					
Relinquished By: (4) 				Date 09/27/21		Time 12:30		Received For Laboratory By: 				or Ambient []				Delivery Method: Hand Delivery [] Commerical Delivery []					

http://www.sgs.com/terms-and-conditions



e-Sample Receipt Form

SGS Workorder #:

1216347

1216347

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements	Yes	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F,1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: @ 1.8 °C Therm. ID: D58
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	Yes	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g, 200.8/6020B).
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1216347001-A	No Preservative Required	OK			
1216347001-B	No Preservative Required	OK			
1216347001-C	HCL to pH < 2	OK			
1216347001-D	HCL to pH < 2	OK			
1216347001-E	HCL to pH < 2	OK			
1216347002-A	No Preservative Required	OK			
1216347002-B	No Preservative Required	OK			
1216347002-C	HCL to pH < 2	OK			
1216347002-D	HCL to pH < 2	OK			
1216347002-E	HCL to pH < 2	OK			
1216347003-A	No Preservative Required	OK			
1216347003-B	No Preservative Required	OK			
1216347003-C	HCL to pH < 2	OK			
1216347003-D	HCL to pH < 2	OK			
1216347003-E	HCL to pH < 2	OK			
1216347004-A	No Preservative Required	OK			
1216347004-B	No Preservative Required	OK			
1216347004-C	HCL to pH < 2	OK			
1216347004-D	HCL to pH < 2	OK			
1216347004-E	HCL to pH < 2	OK			
1216347005-A	No Preservative Required	OK			
1216347005-B	No Preservative Required	OK			
1216347005-C	HCL to pH < 2	OK			
1216347005-D	HCL to pH < 2	OK			
1216347005-E	HCL to pH < 2	OK			
1216347006-A	No Preservative Required	OK			
1216347006-B	No Preservative Required	OK			
1216347006-C	HCL to pH < 2	OK			
1216347006-D	HCL to pH < 2	OK			
1216347006-E	HCL to pH < 2	OK			
1216347007-A	No Preservative Required	OK			
1216347007-B	No Preservative Required	OK			
1216347007-C	HCL to pH < 2	OK			
1216347007-D	HCL to pH < 2	OK			
1216347007-E	HCL to pH < 2	OK			
1216347008-A	No Preservative Required	OK			
1216347008-B	No Preservative Required	OK			
1216347008-C	HCL to pH < 2	OK			
1216347008-D	HCL to pH < 2	OK			
1216347008-E	HCL to pH < 2	OK			
1216347009-A	HCL to pH < 2	OK			
1216347009-B	HCL to pH < 2	OK			
1216347009-C	HCL to pH < 2	OK			

Container Id

Preservative

Container
Condition

Container Id

Preservative

Container
Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

ADEC CHECKLIST

Laboratory Data Review Checklist

Completed By:

Gloria Beckman

Title:

Senior Chemist

Date:

12/23/21

Consultant Firm:

Corvid, LLC

Laboratory Name:

SGS North America, Anchorage, AK

Laboratory Report Number:

1216347

Laboratory Report Date:

10/19/21

CS Site Name:

Drift River Facility 1968 Pipeline

ADEC File Number:

2320.38.023

Hazard Identification Number:

7

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No N/A Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No N/A Comments:

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No N/A Comments:

b. Correct analyses requested?

Yes No N/A Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes No N/A Comments:

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No N/A Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No N/A Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No N/A Comments:

None

e. Data quality or usability affected?

Comments:

NA

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No N/A Comments:

c. Were all corrective actions documented?

Yes No N/A Comments:

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Concentrations of cyclohexane in three samples:GW-DRT-WP22-092621-05, -04, and -13 exceeded the upper level of the 5-point calibration curve. Sample was diluted but reanalyzed outside holding times. Laboratory reported the results from samples run inside holding times. All three results are estimated (J-C). All results are well below the cleanup criteria for groundwater.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No N/A Comments:

b. All applicable holding times met?

Yes No N/A Comments:

c. All soils reported on a dry weight basis?

Yes No N/A Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes No N/A Comments:

e. Data quality or usability affected?

No

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

v. Data quality or usability affected?

Comments:

No

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No N/A Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

NA

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes No N/A Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No N/A Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes No N/A Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Sample results for SW8270D SIM in all but one groundwater sample is estimated (UJ/J-S).

iv. Data quality or usability affected?

Comments:

No. Some results are estimated, but usable to support project objectives.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No N/A Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes No N/A Comments:

iii. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA

v. Data quality or usability affected?

Comments:

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No N/A Comments:

ii. Submitted blind to lab?

Yes No N/A Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No N/A Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

No

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes No N/A Comments:

i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA

iii. Data quality or usability affected?

Comments:

No

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No N/A

Comments:

QAR MEMO

MEMORANDUM

Date: December 24/2021
From: Gloria Beckman, Corvid, LLC., Anchorage, Alaska
To: Martin Mylet, Project Manager, Weston Solutions, Inc., Anchorage, Alaska
Subject: **Quality Assurance Review, 2021 Harvest Alaska Drift River Facility 1968 Pipeline**
ADEC File No: **2320.38.023**

Laboratory Quality Assurance/Quality Control (QA/QC) data associated with the analysis of project samples was reviewed to evaluate the integrity of the analytical data generated during the September 2021 groundwater and soil sampling at the Drift River Facility 1968 Pipeline. Environmental samples were delivered to SGS North America, Inc. in Anchorage, Alaska and reported in two sample delivery groups (SDGs), 1216345 and 1216347.

Sample collection, transportation/handling, and reporting as well as the analytical data were reviewed in accordance with United States Environmental Protection Agency (EPA) procedural guidance document (EPA 2017) and ADEC regulatory guidance documents (ADEC.2017; 2019). This data review focuses on criteria for the following QA/QC parameters and their effect on the quality of data and usability: sample handling and chain-of-custody (CoC) documentation; holding time compliance; field QA/QC (trip blanks, field duplicates) results; laboratory QA/QC (method blanks, laboratory control samples, surrogates, laboratory duplicates, matrix spike and matrix spike duplicate [MS/MSD]) results and analytical methods; method reporting limits; precision and accuracy; and completeness. In the absence of other regulatory QC guidance, method- and/or standard operating procedure-specific QC limits were utilized to apply qualifiers to the data.

Samples were tested using the following methods for the associated analytes:

- Polycyclic Aromatic Hydrocarbons (PAH) by EPA Solid Waste (SW) Method 8270D SIM
- Petroleum Volatile Organic Compounds (VOC) by SW8260D
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by SW8260D
- Gasoline Range Organics (GRO) by Alaska (AK) Method 101
- Diesel Range Organics (DRO) by AK102
- Residual Range Organics (RRO) by AK103
- Two soil samples were prepared according to the synthetic precipitation leaching procedure (SPLP) Method SW1312 and analyzed for BTEX, GRO, DRO and RRO

All sample results are considered usable and meet project objectives. The completeness for this project is 100%. The details of this review and qualification of the data are summarized in the following sections.

SAMPLE HANDLING AND CHAIN OF CUSTODY

Two sample coolers were delivered with COC forms to SGS North America Anchorage laboratory (SGS). The COC forms, laboratory sample receipt forms and case narratives were reviewed to determine if sample handling activities affected the integrity of the samples and the quality of the associated data.

All sample containers were received at the laboratory intact and with proper documentation.

FIELD QA/QC

Field QA/QC protocols are designed to monitor for possible contamination during collection and transport of samples collected in the field. Collection and analysis of field duplicates also facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures and laboratory analyses. For this project trip blanks and field duplicates were submitted for analysis. Equipment blanks were not required.

Trip Blanks

Water trip blanks were prepared by the laboratory, shipped to the site with the empty sample bottles/containers, stored with sample containers during the field event, and transported with the collected samples back to the laboratory for analysis. Two trip blanks were shipped with the coolers. One trip blank was analyzed for BTEX and GRO (SDG 1216345 soils), and the second for petroleum VOCs (SDG 1216347 for BTEX in groundwater), as the project volatile samples.

Contaminants were not detected in either trip blank at concentrations greater than the limit of detection (LOD).

Field Duplicates

The SDG 1216345 included field duplicates SO-DRT-092621-01 and SO-DRT-092621-02; SDG 1216347 included field duplicates GW-DRT-WP3-092621-06. Sample results were estimated (J-D) when the RPDs were greater than 50%. The Analytical Data Summary Tables include the data flags for those results not meeting criteria.

LABORATORY QA/QC

Calibration

The laboratory prepares a calibration curve to accurately quantitate the analytes the results detected in the samples. If sample results are above the highest standard in the curve, the sample requires dilution. If sample is not diluted the result is considered estimated.

The cyclohexane concentrations reported in three samples, GW-DRT-WP22-092621-05, GW-DRT-WP22-092621-05, GW-DRT-WP22-092621-05, were above the calibration curve. The positive results in these samples are considered estimated (J-C).

Method Blanks

Method blanks were analyzed concurrent with each batch of 20 or fewer primary samples for each of the analytical procedures performed for this project.

Method blanks were analyzed at the required frequency and target analytes were not detected in the blanks at concentrations above the LOD.

Laboratory Control Samples

The laboratory monitors internal precision and accuracy for each analytical batch with a set of laboratory control samples (LCS/LCSD). A known quantity of target analytes are added to blank laboratory control samples prior to extraction and analysis and recoveries and relative percent differences (RPDs) are calculated. Acceptable recovery criteria vary with each analytical method, analyte and matrix.

LCS/LCSD percent recoveries meet acceptance criteria.

Matrix Spikes

Extra volumes of primary field samples were collected and submitted to the laboratory for MS/MSD analyses. Matrix spikes have a known quantity of target analytes added (spiked) to field samples. Spike recoveries are calculated and are used to evaluate both site conditions and laboratory quality control.

Matrix spike and matrix spike duplicate values met acceptance criteria for except for RRO in sample SO-DRT-LF1-092621-01. The LCS/LCSD criteria were met for RRO; therefore, the result was not qualified. Additionally, the result in the duplicate sample were similar.

Surrogates

System monitoring compounds (surrogates) are specified for organic chromatographic analytical procedures. These compounds are added to each sample prior to collection or during extraction. Subsequent surrogate recovery indicates overall method performance.

Surrogate recoveries were within prescribed control limits for all primary samples, LCS/LCSD and MS/MSD with the following exceptions:

The PAH surrogate recovery in samples GW-DRT-WP3-092621-06, GW-DRT-WP22-092621-05, GW-DRT-WP7-092621-03, GW-DRT-WP1-092621-02, and GW-DRT-WP5-092621-01 were below acceptance criteria. Therefore, all results in the sample are considered estimated (UJ/J-S).

Detection Limits

The laboratory established detection limits were below the ADEC cleanup levels in the groundwater samples; however, the two samples submitted for SPLP, SO-DRT-LF1-092621-01 SPLP and SO-DRT-LF2-092621-02 SPLP. The non-detected results for GRO, arsenic, cadmium, and mercury should be used with caution.

PRECISION AND ACCURACY

Precision criteria monitor analytical reproducibility. Accuracy criteria monitor agreement of measured results with “true values” established by spiking applicable samples with a known quantity of analyte or surrogate. Precision and accuracy were evaluated by comparing LCS/LCSDs, MS/MSDs for this project. MS/MSD samples were collected in accordance with Work Plan specifications. Recoveries and RPDs for all LCS/LCSD and MS/MSD samples were within required limits, with any exceptions noted in previous sections.

COMPLETENESS

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). The overall project completeness goal is 100%:

$$\% \text{ completeness} = \frac{\text{number of valid (i.e., non-R flagged) results}}{\text{number of possible results}}$$

All requested analyses were performed in accordance with work plan specifications. Completeness for this project is 100%.

REPRESENTATIVENESS

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental condition. The number and selection of samples were specified in the work plan and verified in the field to account accurately for site variations and sample matrices. The data quality objectives (DQO) for representativeness were met.

COMPARABILITY

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this project followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.

DATA SUMMARY

Based upon the information provided, all data are acceptable to support the project decision. All requested analyses were performed in accordance with work plan specifications. Completeness for this project is 100%. The EPA National Functional Guidelines (EPA 2017) were used to evaluate the acceptability of the data. Overall, data quality meets DQOs established in the work plan for this project.

REFERENCES:

ADEC. 2017. Technical Memorandum: Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling. March.

ADEC. 2019 Laboratory Data Review Checklist. Version 2.7. July.

USEPA. 2017. Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 540-R-2017-002). January.

ATTACHMENT 4

MANN-KENDALL ANALYSIS

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

n	16
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	22.1284
Standardized Value of S	0.1808
M-K Test Value (S)	5
Tabulated p-value	0.4470
Approximate p-value	0.4283

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.2016
Theil-Sen Intercept	-362.9343

Insufficient statistical evidence of a significant trend at the specified level of significance.