TONGASS ENGINEERING

PO BOX 5436 KETCHIKAN, ALASKA 99901
(907) 617-8982 | www.tongassengineering.com

State of Alaska DEC Contaminated Sites Program
Attn: Ms. Evonne Reese
PO Box 111800
Juneau, AK 99801

April 17, 2024

Re: 2023 Annual Monitoring Report
Petro Marine Services, Ketchikan
DEC File: 1516.38.026

Dear Ms. Reese,

This report summarizes the total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) monitoring for 2023 at the Petro Marine Services plant and marina located along the waterfront of Tongass Narrows at 1100 Stedman Street in Ketchikan, Alaska (DEC File 1516.38.026).

Background

A site description and environmental history dating back to 1999 for the property is summarized in a decision document from DEC to Petro Marine Services dated 6/3/14. The DEC public record is available at https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/3888. While the site history is not repeated herein, this section explains the previous and current monitoring plans.

In consultation with DEC in October 2011, a third-party consultant initiated a monitoring plan to collect subsurface water samples via existing valves in seawalls at the site for analytical laboratory analysis of contaminants of concern, TAH and TAqH. Sampling occurred twice in November 2011; once per month for December 2011, January 2012, and February 2012; and once per quarter for Quarters 2 and 3 of 2012. In consultation with DEC, sample collection was suspended in October 2012 pending DEC determination of further requirements and controls.

On 6/3/14, DEC issued a Cleanup Complete Determination with Institutional Controls letter to Petro Marine Services documenting the decision to institute long term monitoring to report trends in concentrations of contaminants of concern previously detected above regulatory levels in seawall subsurface waters, as a condition for closure determination. Monitoring consisted of quarterly collection of analytical samples from "Port E", a valve at the base of the south seawall facing Tongass Narrows, for laboratory analysis of BTEX and PAH compounds as TAH and TAqH.

From Quarter 3 of 2014 to Quarter 4 of 2016, Petro Marine Services contracted with a third-party consultant to collect the "Port E" quarterly samples for laboratory analysis; six quarterly samples were obtained during the ten-quarter period. The *2014 to 2016 Monitoring Report* by Tongass Engineering dated 5/12/17 summarizes the results of the analyses and includes data from the 2011-2012 sampling. While the 2014-2016 sampling exceeded the water quality standard and showed a slight upward trend in TAH and TAqH concentrations over the small sample period, the results showed significant declines in concentrations over the longer period from 2011 to 2016.

The *2014 to 2016 Monitoring Report* by Tongass Engineering served as the basis to recommend, in consultation with DEC, continuing the current monitoring program but reduce the sampling

frequency from quarterly to twice per year, once in March/April and once in September/October, as the steep declines in concentrations are likely to moderate and reveal less percent change each quarter. DEC approved the revised sampling plan by email on 5/19/17.

Petro Marine Services proposed no changes to the annual monitoring report requirement or the requirement to continue sampling until concentrations of TAH and TAqH are below regulatory levels for four sampling events, as outlined in Institutional Controls 1 and 2 described in the DEC 6/3/14 Cleanup Complete Determination with Institutional Controls letter to Petro Marine Services.

2023 Sampling

For both the spring and fall 2023 water sampling events, Tongass Engineering collected water samples from "Port E", a valve at the base of the south seawall facing Tongass Narrows. Using Tongass Engineering's standard sampling procedures to prevent contamination, samples were collected in a cleaned Pyrex glass vessel due to the valve proximity near the ground surface, the high flow intensity exiting the valve, the irregularity of the valve water stream, to reduce air bubble entrapment, and to avoid potential splash-out of preservatives. Samples were then transferred into glass containers provided by ALS Environmental following standard protocol for each analysis.

For both the spring and fall 2023 water sampling events, the sample containers were packaged in a cooler with frozen gel packs and shipped express delivery to the ALS Environmental laboratory in Kelso, Washington, for laboratory analysis of BTEX and PAH compounds as TAH and TAqH. All samples were recorded by the laboratory as arriving in good condition and properly preserved.

Observations

Conditions during spring 2023 sampling were typical to previous sampling events.

During the fall 2023 sampling event on 10/19/23, the steel pipe portion of the valve broke during initial opening of the valve; the valve was rendered useless, and the flow could not be controlled because of the breakage. We immediately reported the uncontrolled flow to the local Petro Marine Services operations manager and then continued the sampling according to standard protocol.

Petro Marine Services emailed DEC on 11/20/23 that repairs to the valve were completed on 11/17/23 when tides permitted safe access. The email included the following notes: "The discharge from the pipe was intermittent and visually checked each day for signs of sheening until repairs were made. No sheen was observed." The DEC online site record was updated to reflect the breakage, observations, and repairs.

Testing

The ALS Environmental laboratory tested for the presence and concentrations of the contaminants of concern within the "Port E" samples. The laboratory analyzed BTEX VOC samples per EPA Method 8260C and PAH samples per EPA Method 8270D. Each contaminant is described as follows:

1. Total aromatic hydrocarbons (TAH): The sum of volatile monocyclic aromatic hydrocarbon compounds benzene, toluene, ethylbenzene, and three isomers of xylene (BTEX) typically found in petroleum products such as gasoline and diesel fuel. As the most soluble of the

major gasoline compounds, they are common indicators of gasoline contamination. – DEC 18 AAC 70 / US Environmental Protection Agency / US Geological Survey

2. Total aqueous hydrocarbons (TAqH): The collective dissolved and water-accommodated monocyclic aromatic hydrocarbon compounds of BTEX and polycyclic/polynuclear aromatic hydrocarbons (PAH) that are persistent in the water column, not including floating surface oil or grease. PAH are organic compounds built from two or more benzene rings arranged in various configurations, found naturally in the environment and in petroleum and emissions from fossil fuel utilization and conversion processes. Many are listed by the US Environmental Protection Agency as priority pollutants for monitoring due to toxic and hazardous properties. – DEC 18 AAC 70 / National Research Council / US Geological Survey

Results

TAH and TAqH laboratory test results for all sampling are summarized in Table 1 of Attachment 1. Graphs 1, 2, and 3 of Attachment 2 depict TAH and TAqH concentration trends from various periods between 2011 and 2023. Attachments 3 and 4 include the ALS Environmental laboratory reports from the 2023 spring and fall water sampling events; past lab reports were previously provided to DEC as attachments to the subject year annual monitoring report.

Conclusion

This site is subject to tidal waters of Tongass Narrows, and the applicable water quality standard for petroleum hydrocarbons for marine water uses per 18 AAC 70.020(b)(17)(A) is the following:

Contaminant	Water Quality Standard
TAH	May not exceed 10 µg/L
TAqH	May not exceed 15 µg/L

The 2023 sampling exceeds the applicable water quality standard indicated above and shows an increase in levels, which was not anticipated. However, TAH and TAqH concentrations are still within the lower limits that have been detected since 2021 and the trendlines between 2014 and 2023 and over the most recent five-year period remain strongly downward. Additionally, the 2023 sampling reflects the continuing significant declines relative to the initial sampling conducted from 2011 to 2012. These trends are depicted in the graphs. The spike in the spring 2020 sampling appears to be an anomaly as the growing data set shows a more defined downward trend.

Recommendations

Per DEC's Cleanup Complete Determination with Institutional Controls letter dated 6/3/14 and as amended by email on 5/19/17, we recommend continuing the current monitoring program of twice per year water sample collection at "Port E" for laboratory analysis of BTEX and PAH compounds as TAH and TAqH to document the trend in concentrations. We recommend no changes to the annual monitoring report requirement or the requirement to continue sampling until concentrations of TAH and TAqH are below regulatory levels for four sampling events.

Please do not hesitate to contact us with any questions or if we can be of further assistance.

Sincerely,
TONGASS ENGINEERING, LLC

Brett Serlin, PE

Attachment:

1. Table 1. TAH and TAqH Results Summary
2. TAH and TAqH monitoring graphs
    a. Graph 1. TAH and TAqH Monitoring 2011 to 2023 – Complete Monitoring
    b. Graph 2. TAH and TAqH Monitoring 2014 to 2023 – Post-Event Monitoring
    c. Graph 3. TAH and TAqH Monitoring 2019 to 2023 – Most Recent 5 Years
3. ALS Environmental analytical report, 5/10/23; Laboratory Data Review Checklist, 4/17/24
4. ALS Environmental analytical report, 11/10/23; Laboratory Data Review Checklist, 4/17/24

Cc: Mr. David Simmerman, Petro 49 Inc, davids@shoresidepetroleum.com
Mr. Wendell Pahang, Petro 49 Inc, wendellp@petro49.com

Attachment 1

Table 1. TAH and TAqH Results Summary

Year	Sample Event	Collection Date	Sampler	Sample ID	TAH (µg/L)	TAqH (µg/L)
2011	Nov 2011	11/10/11	R&M Engr Ktn		16,250	16,250
	Nov 2011	11/23/11	R&M Engr Ktn		11,700	11,700
	Dec 2011	12/7/11	R&M Engr Ktn		10,020	10,095
2012	Jan 2012	1/11/12	R&M Engr Ktn		10,070	10,150
	Feb 2012	2/14/12	R&M Engr Ktn		18,200	18,300
	Quarter 2	6/13/12	R&M Engr Ktn		21,000	21,000
	Quarter 3	9/11/12	R&M Engr Ktn		21,000	21,000
	Quarter 4	Sampling program suspended pending DEC determination of further requirements and controls		--	--	--
2013	Quarter 1			--	--	--
	Quarter 2			--	--	--
	Quarter 3			--	--	--
	Quarter 4			--	--	--
2014	Quarter 1			--	--	--
	Quarter 2			--	--	--
	Quarter 3	No sampling performed		--	--	--
	Quarter 4	11/24/14	Full Cycle LLC	PMS outfall 1 (1)	- ND -	- ND -
2015	Quarter 1	No sampling performed		--	--	--
	Quarter 2	No sampling performed		--	--	--
	Quarter 3	7/20/15	Full Cycle LLC	PMS-SW1	630	660
	Quarter 4	10/20/15	Full Cycle LLC	PMS-W-3	2,500	2,500
2016	Quarter 1	2/1/16	Full Cycle LLC	PMS-SW1	1,300	1,300
	Quarter 2	4/29/16	Full Cycle LLC	Port E (2)	1,200	1,200
	Quarter 3	9/13/16	Full Cycle LLC	Port E	1,900	1,900
	Quarter 4	No sampling performed		--	--	--

Table 1. TAH and TAqH Results Summary (continued)

Year	Sample Event	Collection Date	Sampler	Sample ID	TAH (µg/L)	TAqH (µg/L)
2017	Quarter 1	3/27/17	Full Cycle LLC	PORT E	2,300	2,300
	Quarter 2	6/26/17	Full Cycle LLC	PORT E	510	510
	Fall: Q3/Q4	11/8/17	Tongass Engr	Port E	850	870
2018	Spring: Q1/Q2	5/31/18	Tongass Engr	Port E	1,070	1,090
	Fall: Q3/Q4	10/10/18	Tongass Engr	Port E	380	380
2019	Spring: Q1/Q2	6/21/19	Tongass Engr	Port E	860	880
	Fall: Q3/Q4	10/22/19	Tongass Engr	Port E	510	520
2020	Spring: Q1/Q2	4/9/20	Tongass Engr	Port E	1,030	1,050
	Fall: Q3/Q4	10/6/20	Tongass Engr	Port E	580	590
2021	Spring: Q1/Q2	4/21/21	Tongass Engr	Port E	500	510
	Fall: Q3/Q4	10/5/21	Tongass Engr	Port E	450	460
2022	Spring: Q1/Q2	4/25/22	Tongass Engr	Port E	335	340
	Fall: Q3/Q4	10/11/22	Tongass Engr	Port E	230	235
2023	Spring: Q1/Q2	4/26/23	Tongass Engr	Port E	250	255
	Fall: Q3/Q4	10/19/23	Tongass Engr	Port E [(3)]	310	315

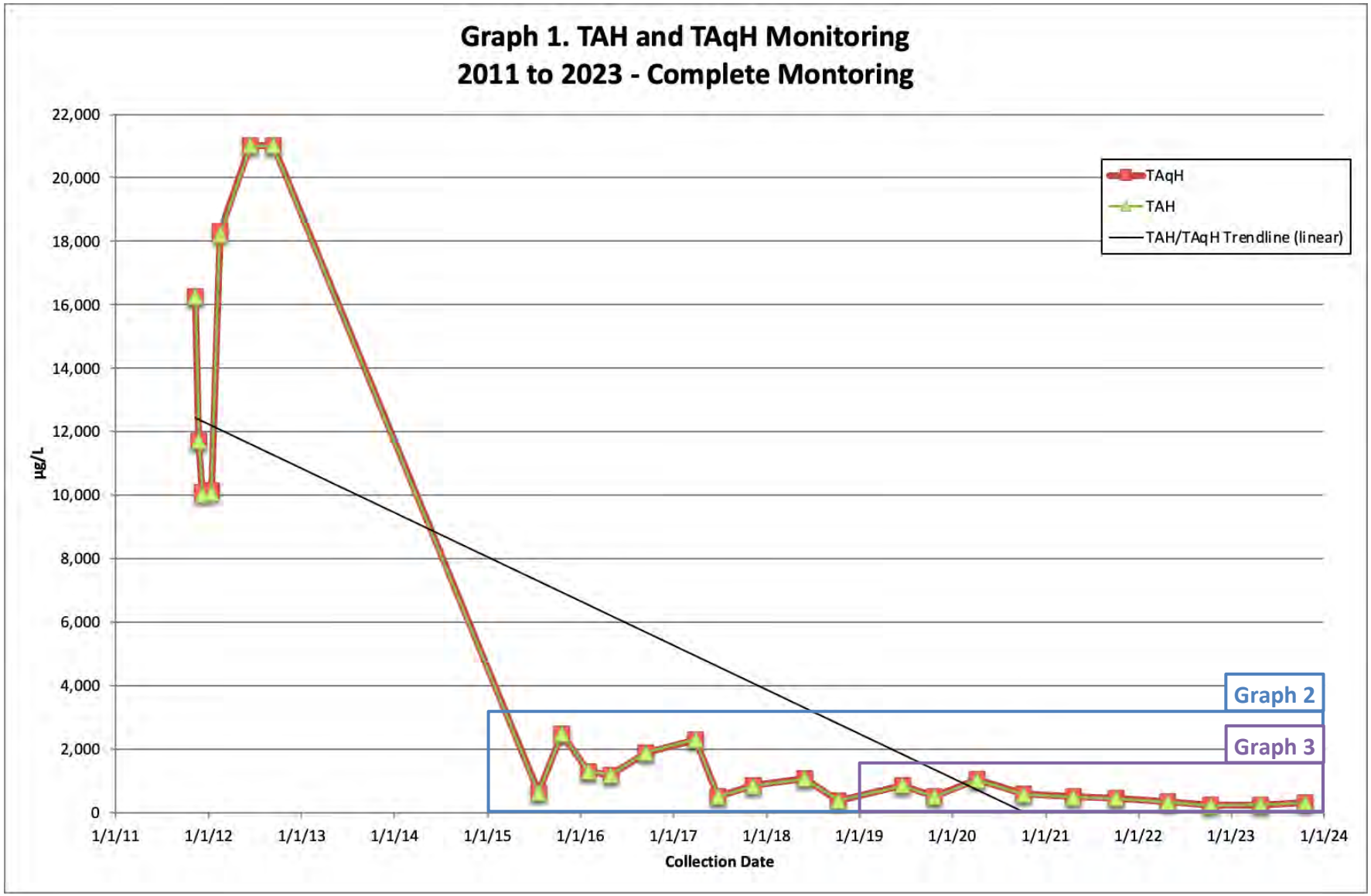
Notes: (1) Based on issues outlined in the associated lab report and the resultant data, it is believed that this sampling event should not be considered representative. This data set is not plotted in the graphical charts due to uncertainty.

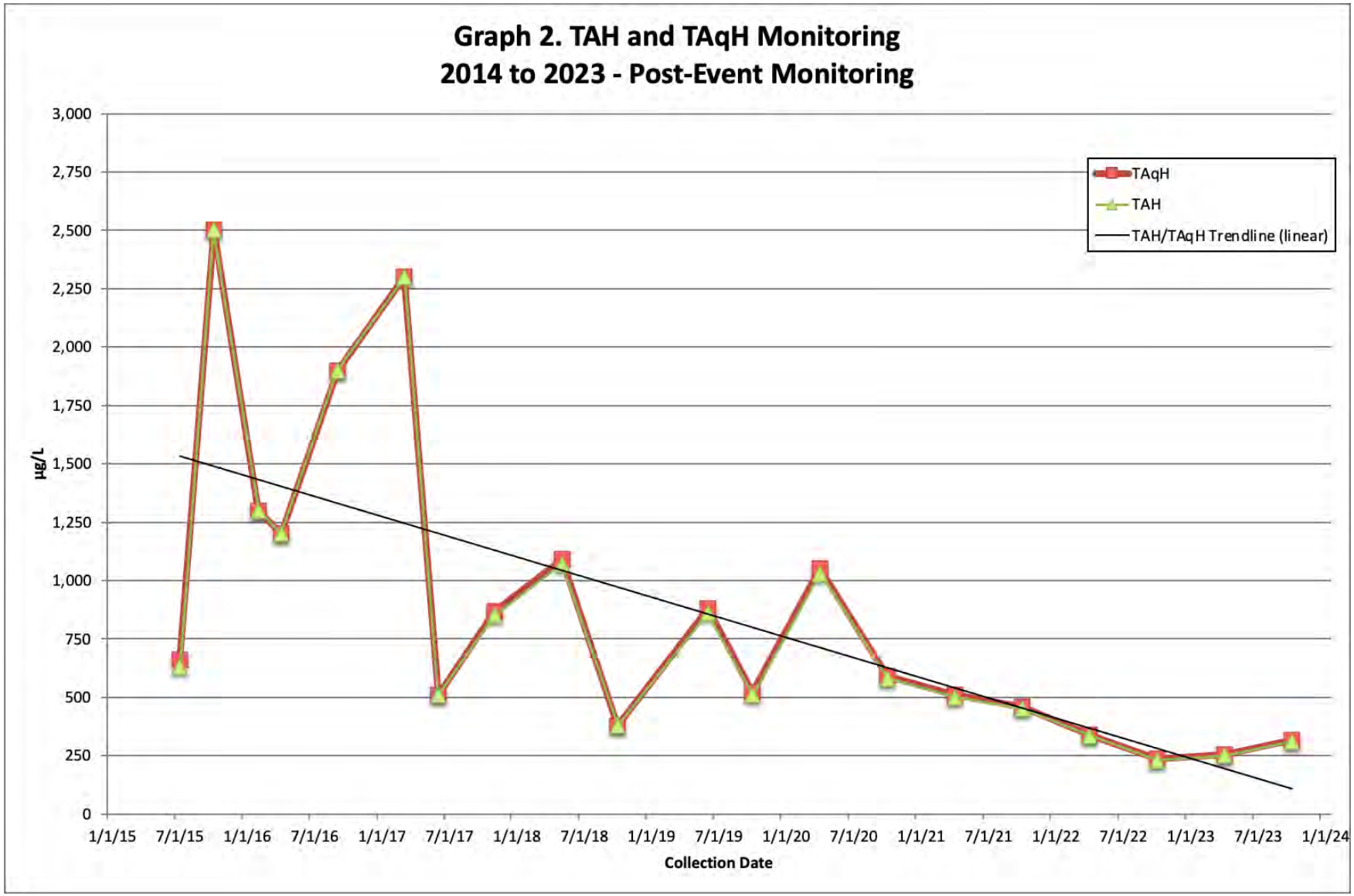
(2) The laboratory receipt notes that the samples were received outside of the required preservation temperature criteria of 4°C ± 2°C. The resultant data does not indicate that this sampling event should otherwise be considered suspect, and this data set is plotted in the graphical charts.

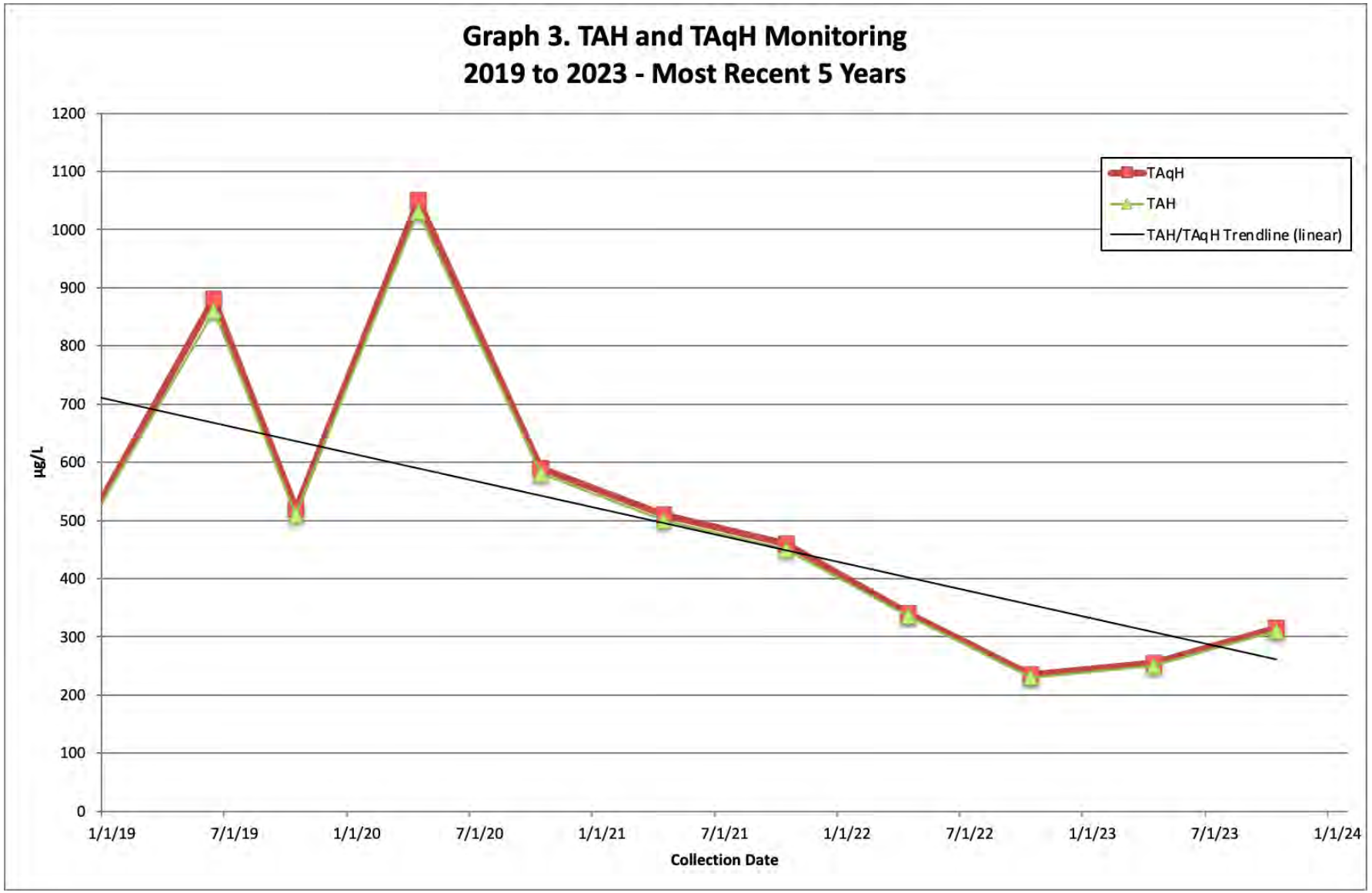
(3) Sample obtained from broken valve that occurred at beginning of sampling event.

ND Indicates that the particular contaminant was not detected in the analyzed sample.

Attachment 2


Graph 1. TAH and TAqH Monitoring
2011 to 2023 - Complete Montoring
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
µg/L
TAqH
TAH
TAH/TAqH Trendline (linear)
Graph 2
Graph 3
1/1/11
1/1/12
1/1/13
1/1/14
1/1/15
1/1/16
1/1/17
1/1/18
1/1/19
1/1/20
1/1/21
1/1/22
1/1/23
1/1/24
Collection Date


Graph 2. TAH and TAqH Monitoring
2014 to 2023 - Post-Event Monitoring
3,000
2,750
2,500
2,250
2,000
1,750
1,500
1,250
1,000
750
500
250
0
µg/L
TAqH
TAH
TAH/TAqH Trendline (linear)
1/1/15
7/1/15
1/1/16
7/1/16
1/1/17
7/1/17
1/1/18
7/1/18
1/1/19
7/1/19
1/1/20
7/1/20
1/1/21
7/1/21
1/1/22
7/1/22
1/1/23
7/1/23
1/1/24
Collection Date


Graph 3. TAH and TAqH Monitoring
2019 to 2023 - Most Recent 5 Years
µg/L
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1/1/19
7/1/19
1/1/20
7/1/20
1/1/21
7/1/21
1/1/22
7/1/22
1/1/23
7/1/23
1/1/24
Collection Date
TAqH
TAH
TAH/TAqH Trendline (linear)

Attachment 3

May 10, 2023 Service Request No:K2304888

Brett Serlin
Tongass Engineering LLC
3451 Denali Avenue
P.O. Box 5436
Ketchikan, AK 99901

Laboratory Results for: Petro Marine Services "Port E"

Dear Brett,

Enclosed are the results of the sample(s) submitted to our laboratory April 28, 2023
For your reference, these analyses have been assigned our service request number **K2304888.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC
Project: Petro Marine Services "Port E"
Sample Matrix: Water

Service Request: K2304888
Date Received: 04/28/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier I level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 04/28/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 05/08/2023:Indeno(1,2,3-cd)pyrene was flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.
Method 8270D, 05/08/2023:The upper control criterion was exceeded for Indeno(1,2,3-cd)pyrene in Laboratory Control Sample (LCS) KQ2308020-02 and Duplicate Laboratory Control Sample (DLCS) KQ2308020-03. The analyte in question was not detected in the associated field sample. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method 8270D, 05/08/2023:The upper control criterion was exceeded for all surrogates in Laboratory Control Sample (LCS) KQ2308020-02. The error associated with an elevated recovery equated to a potential high bias for the LCS. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Volatiles by GC/MS:

Method 8260C, 05/01/2023:Acetone, 2-Hexanone, 4-Methyl-2-pentanone (MIBK), and 4-Bromofluorobenzene, were flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.
Method 8260C, 05/01/2023:The advisory criterion was exceeded for Bromomethane in Laboratory Control Sample (LCS) KQ2308083-03 and Duplicate Laboratory Control Sample (LCS) KQ2308083-04. As per the ALS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes. No further corrective action was required.
Method 8260C, 05/01/2023:The lower control criterion was exceeded for the surrogate 4-Bromofluorobenzene in sample Port E. The error associated with reduced recoveries equates to a potential slight low bias. The results were flagged to indicate the issue. No further corrective action was taken.

Approved by  Date 05/10/2023

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: Port E			Lab ID: K2304888-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1,2,4-Trimethylbenzene	4.0			2.0	ug/L	8260C
2-Methylnaphthalene	0.15			0.022	ug/L	8270D
Acenaphthene	0.40			0.022	ug/L	8270D
Acenaphthylene	0.091			0.022	ug/L	8270D
Anthracene	0.022			0.022	ug/L	8270D
Benzene	220			5.0	ug/L	8260C
Dibenzofuran	0.19			0.022	ug/L	8270D
Ethylbenzene	8.2			0.50	ug/L	8260C
Fluoranthene	0.028			0.022	ug/L	8270D
Fluorene	0.28			0.022	ug/L	8270D
Isopropylbenzene	24			2.0	ug/L	8260C
m,p-Xylenes	17			0.50	ug/L	8260C
Naphthalene	1.1			0.022	ug/L	8270D
n-Propylbenzene	25			2.0	ug/L	8260C
o-Xylene	0.81			0.50	ug/L	8260C
Phenanthrene	0.043			0.022	ug/L	8270D
Pyrene	0.025			0.022	ug/L	8270D
sec-Butylbenzene	4.1			2.0	ug/L	8260C
Toluene	6.1			0.50	ug/L	8260C

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC **Service Request:**K2304888

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2304888-001	Port E	4/26/2023	1350

Chain of Custody

K23041888

ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068

Part of the ALS Group A Campbell Brothers Limited Company

Work Order No.: 129996

Project Manager:	Brett Serlin, Tongass Engineering		**Bill to:**	Brett Serlin	Notes: 1 Please calculate sums for TAH and TAqH and include in report
Client Name:	Petro Marine Services		**Company:**	Tongass Engineering	
Address:	1100 Stedman St		**Address:**	PO Box 5436	
City, State ZIP:	Ketchikan, AK 99901		**City, State ZIP:**	Ketchikan, AK 99901	
Email:	brett@tongassengineering.com	**Phone:** 907-617-8982	**Email:**	brett@tongassengineering.com	**PO #**
Project Name:	Petro Marine Services "Port E"				
Project Number:	ADEC 1516.38.026				
Sampler's Name:	Brett Serlin, Tongass Engineering, Ketchikan, Alaska brett@tongassengineering.com, 907-617-8982				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present		
Received Intact:	Yes	No	N/A	Wet Ice / Blue Ice
Cooler Custody Seals:	Yes	No	N/A	Total Containers:
Sample Custody Seals:	Yes	No	N/A	

REQUESTED ANALYSIS

TAT

- ✓ Routine 21day
- Same Day *** 100%
- Next Day ***
- 3 Day
- 5 Day 50%

Surcharges. Please call for availability

Due Date:

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	8270D / PAH	8260C / VOC FP
1. Port E	WT	4/26/23	1350 akdt		5	✓	✓
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

Comments

Dissolved	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg
Total	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Brett Serlin, Tongass Engineering	Brett Serlin	4/26/23 @ 1600			4/28/23 0947

PM MH

Cooler Receipt and Preservation Form

Client Tompass Service Request K23 04888

Received: 4/28/23 Opened: 4/28/23 By: Z Unloaded: 4/28/23 By: Z

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2, front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
5.7	4.7	1801					

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: (*Inserts*) (*Baggies*) (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026		

Sample Name:	Port E	**Date Collected:**	04/26/23
Lab Code:	K2304888-001	**Date Received:**	04/28/23
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		GROETTGER
8270D	JCHRISTENSEN	EBRUNO

Sample Name:	Port E	**Date Collected:**	04/26/23
Lab Code:	K2304888-001.R01	**Date Received:**	04/28/23
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		GROETTGER

Sample Results

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Volatile Organic Compounds by GC/MS

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Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/26/23 13:50
Sample Matrix:	Water	**Date Received:**	04/28/23 09:27
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2304888-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Acetone	ND	U	20	1	05/01/23 18:11	*
Benzene	**220**		5.0	10	05/01/23 17:51	
Bromobenzene	ND	U	2.0	1	05/01/23 18:11	
Bromochloromethane	ND	U	0.50	1	05/01/23 18:11	
Bromodichloromethane	ND	U	0.50	1	05/01/23 18:11	
Bromoform	ND	U	0.50	1	05/01/23 18:11	
Bromomethane	ND	U	0.50	1	05/01/23 18:11	*
2-Butanone (MEK)	ND	U	20	1	05/01/23 18:11	
n-Butylbenzene	ND	U	4.0	1	05/01/23 18:11	
sec-Butylbenzene	**4.1**		2.0	1	05/01/23 18:11	
tert-Butylbenzene	ND	U	2.0	1	05/01/23 18:11	
Carbon Disulfide	ND	U	0.50	1	05/01/23 18:11	
Carbon Tetrachloride	ND	U	0.50	1	05/01/23 18:11	
Chlorobenzene	ND	U	0.50	1	05/01/23 18:11	
Chloroethane	ND	U	0.50	1	05/01/23 18:11	
Chloroform	ND	U	0.50	1	05/01/23 18:11	
Chloromethane	ND	U	0.50	1	05/01/23 18:11	
2-Chlorotoluene	ND	U	2.0	1	05/01/23 18:11	
4-Chlorotoluene	ND	U	2.0	1	05/01/23 18:11	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	05/01/23 18:11	
Dibromochloromethane	ND	U	0.50	1	05/01/23 18:11	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	05/01/23 18:11	
Dibromomethane	ND	U	0.50	1	05/01/23 18:11	
1,2-Dichlorobenzene	ND	U	0.50	1	05/01/23 18:11	
1,3-Dichlorobenzene	ND	U	0.50	1	05/01/23 18:11	
1,4-Dichlorobenzene	ND	U	0.50	1	05/01/23 18:11	
Dichlorodifluoromethane	ND	U	0.50	1	05/01/23 18:11	
1,1-Dichloroethane	ND	U	0.50	1	05/01/23 18:11	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	05/01/23 18:11	
1,1-Dichloroethene	ND	U	0.50	1	05/01/23 18:11	
cis-1,2-Dichloroethene	ND	U	0.50	1	05/01/23 18:11	
trans-1,2-Dichloroethene	ND	U	0.50	1	05/01/23 18:11	
1,2-Dichloropropane	ND	U	0.50	1	05/01/23 18:11	
1,3-Dichloropropane	ND	U	0.50	1	05/01/23 18:11	
2,2-Dichloropropane	ND	U	0.50	1	05/01/23 18:11	
1,1-Dichloropropene	ND	U	0.50	1	05/01/23 18:11	
cis-1,3-Dichloropropene	ND	U	0.50	1	05/01/23 18:11	
trans-1,3-Dichloropropene	ND	U	0.50	1	05/01/23 18:11	
Ethylbenzene	**8.2**		0.50	1	05/01/23 18:11	
Hexachlorobutadiene	ND	U	2.0	1	05/01/23 18:11	
2-Hexanone	ND	U	20	1	05/01/23 18:11	*

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/26/23 13:50
Sample Matrix:	Water	**Date Received:**	04/28/23 09:27
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2304888-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Isopropylbenzene	**24**	2.0	1	05/01/23 18:11	
4-Isopropyltoluene	ND U	2.0	1	05/01/23 18:11	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	05/01/23 18:11	*
Methylene Chloride	ND U	2.0	1	05/01/23 18:11	
Naphthalene	ND U	2.0	1	05/01/23 18:11	
n-Propylbenzene	**25**	2.0	1	05/01/23 18:11	
Styrene	ND U	0.50	1	05/01/23 18:11	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	05/01/23 18:11	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	05/01/23 18:11	
Tetrachloroethene (PCE)	ND U	0.50	1	05/01/23 18:11	
Toluene	**6.1**	0.50	1	05/01/23 18:11	
1,2,3-Trichlorobenzene	ND U	2.0	1	05/01/23 18:11	
1,2,4-Trichlorobenzene	ND U	2.0	1	05/01/23 18:11	
1,1,2-Trichloroethane	ND U	0.50	1	05/01/23 18:11	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	05/01/23 18:11	
Trichloroethene (TCE)	ND U	0.50	1	05/01/23 18:11	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	05/01/23 18:11	
1,2,3-Trichloropropane	ND U	0.50	1	05/01/23 18:11	
1,2,4-Trimethylbenzene	**4.0**	2.0	1	05/01/23 18:11	
1,3,5-Trimethylbenzene	ND U	2.0	1	05/01/23 18:11	
Vinyl Chloride	ND U	0.50	1	05/01/23 18:11	
o-Xylene	**0.81**	0.50	1	05/01/23 18:11	
m,p-Xylenes	**17**	0.50	1	05/01/23 18:11	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	63	68 - 117	05/01/23 18:11	*
Dibromofluoromethane	94	73 - 122	05/01/23 18:11	
Toluene-d8	99	65 - 144	05/01/23 18:11	

Semivolatile Organic Compounds by GC/MS

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Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	04/26/23 13:50
Sample Matrix:	Water	**Date Received:**	04/28/23 09:27
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2304888-001	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	**0.15**	0.022	1	05/08/23 18:18	5/3/23	
Acenaphthene	**0.40**	0.022	1	05/08/23 18:18	5/3/23	
Acenaphthylene	**0.091**	0.022	1	05/08/23 18:18	5/3/23	
Anthracene	**0.022**	0.022	1	05/08/23 18:18	5/3/23	
Benz(a)anthracene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Benzo(a)pyrene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Benzo(b)fluoranthene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Benzo(g,h,i)perylene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Benzo(k)fluoranthene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Chrysene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Dibenz(a,h)anthracene	ND U	0.022	1	05/08/23 18:18	5/3/23	
Dibenzofuran	**0.19**	0.022	1	05/08/23 18:18	5/3/23	
Fluoranthene	**0.028**	0.022	1	05/08/23 18:18	5/3/23	
Fluorene	**0.28**	0.022	1	05/08/23 18:18	5/3/23	
Indeno(1,2,3-cd)pyrene	ND U	0.022	1	05/08/23 18:18	5/3/23	*
Naphthalene	**1.1**	0.022	1	05/08/23 18:18	5/3/23	
Phenanthrene	**0.043**	0.022	1	05/08/23 18:18	5/3/23	
Pyrene	**0.025**	0.022	1	05/08/23 18:18	5/3/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	101	42 - 133	05/08/23 18:18	
Fluorene-d10	83	42 - 131	05/08/23 18:18	
Terphenyl-d14	81	32 - 129	05/08/23 18:18	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Tongass Engineering LLC **Service Request:** K2304888

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene 68-117	Dibromofluoromethane 73-122	Toluene-d8 65-144
Port E	K2304888-001	63*	94	99
Method Blank	KQ2308083-05	79	93	92
Lab Control Sample	KQ2308083-03	79	93	93
Duplicate Lab Control Sample	KQ2308083-04	79	94	95

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2308083-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	05/01/23 15:11	
Benzene	ND U	0.50	1	05/01/23 15:11	
Bromobenzene	ND U	2.0	1	05/01/23 15:11	
Bromochloromethane	ND U	0.50	1	05/01/23 15:11	
Bromodichloromethane	ND U	0.50	1	05/01/23 15:11	
Bromoform	ND U	0.50	1	05/01/23 15:11	
Bromomethane	ND U	0.50	1	05/01/23 15:11	
2-Butanone (MEK)	ND U	20	1	05/01/23 15:11	
n-Butylbenzene	ND U	4.0	1	05/01/23 15:11	
sec-Butylbenzene	ND U	2.0	1	05/01/23 15:11	
tert-Butylbenzene	ND U	2.0	1	05/01/23 15:11	
Carbon Disulfide	ND U	0.50	1	05/01/23 15:11	
Carbon Tetrachloride	ND U	0.50	1	05/01/23 15:11	
Chlorobenzene	ND U	0.50	1	05/01/23 15:11	
Chloroethane	ND U	0.50	1	05/01/23 15:11	
Chloroform	ND U	0.50	1	05/01/23 15:11	
Chloromethane	ND U	0.50	1	05/01/23 15:11	
2-Chlorotoluene	ND U	2.0	1	05/01/23 15:11	
4-Chlorotoluene	ND U	2.0	1	05/01/23 15:11	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	05/01/23 15:11	
Dibromochloromethane	ND U	0.50	1	05/01/23 15:11	
1,2-Dibromoethane (EDB)	ND U	2.0	1	05/01/23 15:11	
Dibromomethane	ND U	0.50	1	05/01/23 15:11	
1,2-Dichlorobenzene	ND U	0.50	1	05/01/23 15:11	
1,3-Dichlorobenzene	ND U	0.50	1	05/01/23 15:11	
1,4-Dichlorobenzene	ND U	0.50	1	05/01/23 15:11	
Dichlorodifluoromethane	ND U	0.50	1	05/01/23 15:11	
1,1-Dichloroethane	ND U	0.50	1	05/01/23 15:11	
1,2-Dichloroethane (EDC)	ND U	0.50	1	05/01/23 15:11	
1,1-Dichloroethene	ND U	0.50	1	05/01/23 15:11	
cis-1,2-Dichloroethene	ND U	0.50	1	05/01/23 15:11	
trans-1,2-Dichloroethene	ND U	0.50	1	05/01/23 15:11	
1,2-Dichloropropane	ND U	0.50	1	05/01/23 15:11	
1,3-Dichloropropane	ND U	0.50	1	05/01/23 15:11	
2,2-Dichloropropane	ND U	0.50	1	05/01/23 15:11	
1,1-Dichloropropene	ND U	0.50	1	05/01/23 15:11	
cis-1,3-Dichloropropene	ND U	0.50	1	05/01/23 15:11	
trans-1,3-Dichloropropene	ND U	0.50	1	05/01/23 15:11	
Ethylbenzene	ND U	0.50	1	05/01/23 15:11	
Hexachlorobutadiene	ND U	2.0	1	05/01/23 15:11	
2-Hexanone	ND U	20	1	05/01/23 15:11	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2308083-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Isopropylbenzene	ND U	2.0	1	05/01/23 15:11	
4-Isopropyltoluene	ND U	2.0	1	05/01/23 15:11	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	05/01/23 15:11	
Methylene Chloride	ND U	2.0	1	05/01/23 15:11	
Naphthalene	ND U	2.0	1	05/01/23 15:11	
n-Propylbenzene	ND U	2.0	1	05/01/23 15:11	
Styrene	ND U	0.50	1	05/01/23 15:11	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	05/01/23 15:11	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	05/01/23 15:11	
Tetrachloroethene (PCE)	ND U	0.50	1	05/01/23 15:11	
Toluene	ND U	0.50	1	05/01/23 15:11	
1,2,3-Trichlorobenzene	ND U	2.0	1	05/01/23 15:11	
1,2,4-Trichlorobenzene	ND U	2.0	1	05/01/23 15:11	
1,1,2-Trichloroethane	ND U	0.50	1	05/01/23 15:11	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	05/01/23 15:11	
Trichloroethene (TCE)	ND U	0.50	1	05/01/23 15:11	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	05/01/23 15:11	
1,2,3-Trichloropropane	ND U	0.50	1	05/01/23 15:11	
1,2,4-Trimethylbenzene	ND U	2.0	1	05/01/23 15:11	
1,3,5-Trimethylbenzene	ND U	2.0	1	05/01/23 15:11	
Vinyl Chloride	ND U	0.50	1	05/01/23 15:11	
o-Xylene	ND U	0.50	1	05/01/23 15:11	
m,p-Xylenes	ND U	0.50	1	05/01/23 15:11	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	79	68 - 117	05/01/23 15:11	
Dibromofluoromethane	93	73 - 122	05/01/23 15:11	
Toluene-d8	92	65 - 144	05/01/23 15:11	

Semivolatile Organic Compounds by GC/MS

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Client: Tongass Engineering LLC **Service Request:** K2304888
Project: Petro Marine Services "Port E"/ADEC 1516.38.026
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10 42-133	Fluorene-d10 42-131	Terphenyl-d14 32-129
Port E	K2304888-001	101	83	81
Method Blank	KQ2308020-01	90	97	95
Lab Control Sample	KQ2308020-02	135*	143*	135*
Duplicate Lab Control Sample	KQ2308020-03	102	105	101

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2304888
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2308020-01	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Acenaphthene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Acenaphthylene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Anthracene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Benz(a)anthracene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Benzo(a)pyrene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Benzo(b)fluoranthene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Benzo(g,h,i)perylene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Benzo(k)fluoranthene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Chrysene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Dibenz(a,h)anthracene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Dibenzofuran	ND U	0.022	1	05/08/23 17:02	5/3/23	
Fluoranthene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Fluorene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Indeno(1,2,3-cd)pyrene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Naphthalene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Phenanthrene	ND U	0.022	1	05/08/23 17:02	5/3/23	
Pyrene	ND U	0.022	1	05/08/23 17:02	5/3/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	90	42 - 133	05/08/23 17:02	
Fluorene-d10	97	42 - 131	05/08/23 17:02	
Terphenyl-d14	95	32 - 129	05/08/23 17:02	

Laboratory Data Review Checklist

Completed By:

Brett Serlin

Title:

Engineer

Date:

4/17/24

Consultant Firm:

Tongass Engineering

Laboratory Name:

ALS Environmental

Laboratory Report Number:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

ADEC File Number:

1516.38.026

Hazard Identification Number:

3888

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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:

   Samples not transferred.

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:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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:

No discrepancies.

e. Data quality or usability affected?

Comments:

No.

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:

None.

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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:

Not soils analysis.

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:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

None affected.

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:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

None affected.

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:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

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:

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:

iv. Data quality or usability affected?

Comments:

No.

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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:

Trip blank not required for project.

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:

v. Data quality or usability affected?

Comments:

No.

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

Field duplicate not yet collected.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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

RPD (%) = 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:

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

Yes☐ No☒ N/A☐ Comments:

Only equipment used is decontaminated glass sampling container. Based on type of sampling being performed, equipment blank is deemed unnecessary.

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:

iii. Data quality or usability affected?
Comments:

No.

K2304888

Laboratory Report Date:

5/10/23

CS Site Name:

Petro Marine Ketchikan

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

   a. Defined and appropriate?

      Yes☒ No☐ N/A☐ Comments:

Yes, in the laboratory case narrative.

Attachment 4

November 10, 2023 Service Request No:K2312098

Brett Serlin
Tongass Engineering LLC
3451 Denali Avenue
P.O. Box 5436
Ketchikan, AK 99901

Laboratory Results for: Petro Marine Services "Port E"

Dear Brett,

Enclosed are the results of the sample(s) submitted to our laboratory October 23, 2023
For your reference, these analyses have been assigned our service request number **K2312098.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC
Project: Petro Marine Services "Port E"
Sample Matrix: Water

Service Request: K2312098
Date Received: 10/23/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 10/23/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 10/26/2023:The upper control criterion was exceeded for 2-Methylnaphthalene in Laboratory Control Sample (LCS) KQ2318920-02 and Duplicate Laboratory Control Sample (DLCS) KQ2318920-03. The error associated with elevated recovery indicated a possible slight high bias. The sample data was not significantly affected. No further corrective action was appropriate.

General Chemistry:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260C, 10/26/2023:1,2-Dibromo-3-chloropropane and Naphthalene were flagged as outside the control criterion for Continuing Calibration Verification (CCV). In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.
Method 8260C, 10/26/2023:Sample Port E required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Approved by  Date 11/10/2023

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: Port E			Lab ID: K2312098-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1,2,4-Trimethylbenzene	29			2.0	ug/L	8260C
2-Methylnaphthalene	0.87			0.040	ug/L	8270D
Acenaphthene	0.58			0.040	ug/L	8270D
Acenaphthylene	0.12			0.040	ug/L	8270D
Benzene	180			5.0	ug/L	8260C
Dibenzofuran	0.25			0.040	ug/L	8270D
Ethylbenzene	54			0.50	ug/L	8260C
Fluorene	0.50			0.040	ug/L	8270D
Isopropylbenzene	21			2.0	ug/L	8260C
m,p-Xylenes	67			0.50	ug/L	8260C
Naphthalene	4.3			2.0	ug/L	8260C
Naphthalene	4.0			0.040	ug/L	8270D
n-Propylbenzene	32			2.0	ug/L	8260C
o-Xylene	2.6			0.50	ug/L	8260C
Phenanthrene	0.086			0.040	ug/L	8270D
Pyrene	0.048			0.040	ug/L	8270D
sec-Butylbenzene	3.5			2.0	ug/L	8260C
Toluene	5.3			0.50	ug/L	8260C

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC **Service Request:**K2312098

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2312098-001	Port E	10/19/2023	1045

Chain of Custody

VN2312098

ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068
Part of the ALS Group A Campbell Brothers Limited Company

Work Order No.: 132132

Project Manager:	Brett Serlin, Tongass Engineering		**Bill to:**	Brett Serlin	Notes: 1. Please calculate sums for TAH and TAqH and include in report
Client Name:	Petro Marine Services		**Company:**	Tongass Engineering	
Address:	1100 Stedman St		**Address:**	PO Box 5436	
City, State ZIP:	Ketchikan, AK 99901		**City, State ZIP:**	Ketchikan, AK 99901	
Email:	brett@tongassengineering.com	**Phone:** 907-617-8982	**Email:**	brett@tongassengineering.com	**PO #**
Project Name:	Petro Marine Services "Port E"				
Project Number:	ADEC 1516.38.026				
Sampler's Name:	Brett Serlin, Tongass Engineering, Ketchikan, Alaska brett@tongassengineering.com, 907-617-8982				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present	
Received Intact:	Yes No N/A	Wet Ice / Blue Ice	
Cooler Custody Seals:	Yes No N/A	Total Containers:	
Sample Custody Seals:	Yes No N/A		

REQUESTED ANALYSIS

TAT

- ✓ Routine 21day
- Same Day *** 100%
- Next Day ***
- 3 Day
- 5 Day 50%

Surcharges. Please call for availability

Due Date:

Comments

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	8270D / PAH 7D	SM 2120 B / Color 14D/7D
1. Port E	WT	10/19/23	1045 akdt		5	✓	✓
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

Dissolved	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg
Total	Ag Al As B Ba Be Ca Cd Co Cr Cu Fe K Li Mg Mn Mo Na Ni P Pb Sb Se Si Sn Sr Th Tl U V Zn Hg

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Brett Serlin, Tongass Engineering	Brett Serlin	10/19/23 @ 1500	Marielyn Mitolo		10/23/23 1345

PM MH

Cooler Receipt and Preservation Form

Client Tangas3 Service Request K23 12098

Received: 10/23/23 Opened: 10/23/23 By: VM Unloaded: 10/23/23 By: VM

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
3.5		IR06	1 of 2				
5.0		↓	2 of 2				

4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N VM
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM NA Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

SHORT HOLD

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: Received 40mL HCL VOAS (3) and 2 1000mL glass bottles.

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026		

Sample Name:	Port E	**Date Collected:**	10/19/23
Lab Code:	K2312098-001	**Date Received:**	10/23/23
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		GROETTGER
8270D	DPEARCE	EBRUNO
SM 2120 B		ACHEATLEY

Sample Name:	Port E	**Date Collected:**	10/19/23
Lab Code:	K2312098-001.R01	**Date Received:**	10/23/23
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		GROETTGER

Sample Results

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Volatile Organic Compounds by GC/MS

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Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	10/19/23 10:45
Sample Matrix:	Water	**Date Received:**	10/23/23 13:45
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2312098-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Acetone	ND	U	20	1	10/26/23 18:52	
Benzene	**180**		5.0	10	10/26/23 18:28	
Bromobenzene	ND	U	2.0	1	10/26/23 18:52	
Bromochloromethane	ND	U	0.50	1	10/26/23 18:52	
Bromodichloromethane	ND	U	0.50	1	10/26/23 18:52	
Bromoform	ND	U	0.50	1	10/26/23 18:52	
Bromomethane	ND	U	0.50	1	10/26/23 18:52	
2-Butanone (MEK)	ND	U	20	1	10/26/23 18:52	
n-Butylbenzene	ND	U	4.0	1	10/26/23 18:52	
sec-Butylbenzene	**3.5**		2.0	1	10/26/23 18:52	
tert-Butylbenzene	ND	U	2.0	1	10/26/23 18:52	
Carbon Disulfide	ND	U	0.50	1	10/26/23 18:52	
Carbon Tetrachloride	ND	U	0.50	1	10/26/23 18:52	
Chlorobenzene	ND	U	0.50	1	10/26/23 18:52	
Chloroethane	ND	U	0.50	1	10/26/23 18:52	
Chloroform	ND	U	0.50	1	10/26/23 18:52	
Chloromethane	ND	U	0.50	1	10/26/23 18:52	
2-Chlorotoluene	ND	U	2.0	1	10/26/23 18:52	
4-Chlorotoluene	ND	U	2.0	1	10/26/23 18:52	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	10/26/23 18:52	*
Dibromochloromethane	ND	U	0.50	1	10/26/23 18:52	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	10/26/23 18:52	
Dibromomethane	ND	U	0.50	1	10/26/23 18:52	
1,2-Dichlorobenzene	ND	U	0.50	1	10/26/23 18:52	
1,3-Dichlorobenzene	ND	U	0.50	1	10/26/23 18:52	
1,4-Dichlorobenzene	ND	U	0.50	1	10/26/23 18:52	
Dichlorodifluoromethane	ND	U	0.50	1	10/26/23 18:52	
1,1-Dichloroethane	ND	U	0.50	1	10/26/23 18:52	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	10/26/23 18:52	
1,1-Dichloroethene	ND	U	0.50	1	10/26/23 18:52	
cis-1,2-Dichloroethene	ND	U	0.50	1	10/26/23 18:52	
trans-1,2-Dichloroethene	ND	U	0.50	1	10/26/23 18:52	
1,2-Dichloropropane	ND	U	0.50	1	10/26/23 18:52	
1,3-Dichloropropane	ND	U	0.50	1	10/26/23 18:52	
2,2-Dichloropropane	ND	U	0.50	1	10/26/23 18:52	
1,1-Dichloropropene	ND	U	0.50	1	10/26/23 18:52	
cis-1,3-Dichloropropene	ND	U	0.50	1	10/26/23 18:52	
trans-1,3-Dichloropropene	ND	U	0.50	1	10/26/23 18:52	
Ethylbenzene	**54**		0.50	1	10/26/23 18:52	
Hexachlorobutadiene	ND	U	2.0	1	10/26/23 18:52	
2-Hexanone	ND	U	20	1	10/26/23 18:52	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	10/19/23 10:45
Sample Matrix:	Water	**Date Received:**	10/23/23 13:45
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2312098-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Isopropylbenzene	**21**	2.0	1	10/26/23 18:52	
4-Isopropyltoluene	ND U	2.0	1	10/26/23 18:52	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	10/26/23 18:52	
Methylene Chloride	ND U	2.0	1	10/26/23 18:52	
Naphthalene	**4.3**	2.0	1	10/26/23 18:52	*
n-Propylbenzene	**32**	2.0	1	10/26/23 18:52	
Styrene	ND U	0.50	1	10/26/23 18:52	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	10/26/23 18:52	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	10/26/23 18:52	
Tetrachloroethene (PCE)	ND U	0.50	1	10/26/23 18:52	
Toluene	**5.3**	0.50	1	10/26/23 18:52	
1,2,3-Trichlorobenzene	ND U	2.0	1	10/26/23 18:52	
1,2,4-Trichlorobenzene	ND U	2.0	1	10/26/23 18:52	
1,1,2-Trichloroethane	ND U	0.50	1	10/26/23 18:52	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	10/26/23 18:52	
Trichloroethene (TCE)	ND U	0.50	1	10/26/23 18:52	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	10/26/23 18:52	
1,2,3-Trichloropropane	ND U	0.50	1	10/26/23 18:52	
1,2,4-Trimethylbenzene	**29**	2.0	1	10/26/23 18:52	
1,3,5-Trimethylbenzene	ND U	2.0	1	10/26/23 18:52	
Vinyl Chloride	ND U	0.50	1	10/26/23 18:52	
o-Xylene	**2.6**	0.50	1	10/26/23 18:52	
m,p-Xylenes	**67**	0.50	1	10/26/23 18:52	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	85	68 - 117	10/26/23 18:52	
Dibromofluoromethane	101	73 - 122	10/26/23 18:52	
Toluene-d8	108	65 - 144	10/26/23 18:52	

Semivolatile Organic Compounds by GC/MS

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Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	10/19/23 10:45
Sample Matrix:	Water	**Date Received:**	10/23/23 13:45
Sample Name:	Port E	**Units:**	ug/L
Lab Code:	K2312098-001	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	**0.87**	0.040	1	10/26/23 17:28	10/25/23	*
Acenaphthene	**0.58**	0.040	1	10/26/23 17:28	10/25/23	
Acenaphthylene	**0.12**	0.040	1	10/26/23 17:28	10/25/23	
Anthracene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Benz(a)anthracene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Benzo(a)pyrene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Benzo(b)fluoranthene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Benzo(g,h,i)perylene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Benzo(k)fluoranthene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Chrysene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Dibenz(a,h)anthracene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Dibenzofuran	**0.25**	0.040	1	10/26/23 17:28	10/25/23	
Fluoranthene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Fluorene	**0.50**	0.040	1	10/26/23 17:28	10/25/23	
Indeno(1,2,3-cd)pyrene	ND U	0.040	1	10/26/23 17:28	10/25/23	
Naphthalene	**4.0**	0.040	1	10/26/23 17:28	10/25/23	
Phenanthrene	**0.086**	0.040	1	10/26/23 17:28	10/25/23	
Pyrene	**0.048**	0.040	1	10/26/23 17:28	10/25/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	111	42 - 133	10/26/23 17:28	
Fluorene-d10	107	42 - 131	10/26/23 17:28	
Terphenyl-d14	85	32 - 129	10/26/23 17:28	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Tongass Engineering LLC **Service Request:** K2312098

Project: Petro Marine Services "Port E"/ADEC 1516.38.026

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene 68 - 117	Dibromofluoromethane 73 - 122	Toluene-d8 65 - 144
Port E	K2312098-001	85	101	108
Lab Control Sample	KQ2319194-03	106	107	105
Duplicate Lab Control Sample	KQ2319194-04	104	110	106
Method Blank	KQ2319194-05	92	105	99

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2319194-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Acetone	ND U	20	1	10/26/23 13:11	
Benzene	ND U	0.50	1	10/26/23 13:11	
Bromobenzene	ND U	2.0	1	10/26/23 13:11	
Bromochloromethane	ND U	0.50	1	10/26/23 13:11	
Bromodichloromethane	ND U	0.50	1	10/26/23 13:11	
Bromoform	ND U	0.50	1	10/26/23 13:11	
Bromomethane	ND U	0.50	1	10/26/23 13:11	
2-Butanone (MEK)	ND U	20	1	10/26/23 13:11	
n-Butylbenzene	ND U	4.0	1	10/26/23 13:11	
sec-Butylbenzene	ND U	2.0	1	10/26/23 13:11	
tert-Butylbenzene	ND U	2.0	1	10/26/23 13:11	
Carbon Disulfide	ND U	0.50	1	10/26/23 13:11	
Carbon Tetrachloride	ND U	0.50	1	10/26/23 13:11	
Chlorobenzene	ND U	0.50	1	10/26/23 13:11	
Chloroethane	ND U	0.50	1	10/26/23 13:11	
Chloroform	ND U	0.50	1	10/26/23 13:11	
Chloromethane	ND U	0.50	1	10/26/23 13:11	
2-Chlorotoluene	ND U	2.0	1	10/26/23 13:11	
4-Chlorotoluene	ND U	2.0	1	10/26/23 13:11	
1,2-Dibromo-3-chloropropane	ND U	2.0	1	10/26/23 13:11	
Dibromochloromethane	ND U	0.50	1	10/26/23 13:11	
1,2-Dibromoethane (EDB)	ND U	2.0	1	10/26/23 13:11	
Dibromomethane	ND U	0.50	1	10/26/23 13:11	
1,2-Dichlorobenzene	ND U	0.50	1	10/26/23 13:11	
1,3-Dichlorobenzene	ND U	0.50	1	10/26/23 13:11	
1,4-Dichlorobenzene	ND U	0.50	1	10/26/23 13:11	
Dichlorodifluoromethane	ND U	0.50	1	10/26/23 13:11	
1,1-Dichloroethane	ND U	0.50	1	10/26/23 13:11	
1,2-Dichloroethane (EDC)	ND U	0.50	1	10/26/23 13:11	
1,1-Dichloroethene	ND U	0.50	1	10/26/23 13:11	
cis-1,2-Dichloroethene	ND U	0.50	1	10/26/23 13:11	
trans-1,2-Dichloroethene	ND U	0.50	1	10/26/23 13:11	
1,2-Dichloropropane	ND U	0.50	1	10/26/23 13:11	
1,3-Dichloropropane	ND U	0.50	1	10/26/23 13:11	
2,2-Dichloropropane	ND U	0.50	1	10/26/23 13:11	
1,1-Dichloropropene	ND U	0.50	1	10/26/23 13:11	
cis-1,3-Dichloropropene	ND U	0.50	1	10/26/23 13:11	
trans-1,3-Dichloropropene	ND U	0.50	1	10/26/23 13:11	
Ethylbenzene	ND U	0.50	1	10/26/23 13:11	
Hexachlorobutadiene	ND U	2.0	1	10/26/23 13:11	
2-Hexanone	ND U	20	1	10/26/23 13:11	

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2319194-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Isopropylbenzene	ND U	2.0	1	10/26/23 13:11	
4-Isopropyltoluene	ND U	2.0	1	10/26/23 13:11	
4-Methyl-2-pentanone (MIBK)	ND U	20	1	10/26/23 13:11	
Methylene Chloride	ND U	2.0	1	10/26/23 13:11	
Naphthalene	ND U	2.0	1	10/26/23 13:11	
n-Propylbenzene	ND U	2.0	1	10/26/23 13:11	
Styrene	ND U	0.50	1	10/26/23 13:11	
1,1,1,2-Tetrachloroethane	ND U	0.50	1	10/26/23 13:11	
1,1,2,2-Tetrachloroethane	ND U	0.50	1	10/26/23 13:11	
Tetrachloroethene (PCE)	ND U	0.50	1	10/26/23 13:11	
Toluene	ND U	0.50	1	10/26/23 13:11	
1,2,3-Trichlorobenzene	ND U	2.0	1	10/26/23 13:11	
1,2,4-Trichlorobenzene	ND U	2.0	1	10/26/23 13:11	
1,1,2-Trichloroethane	ND U	0.50	1	10/26/23 13:11	
1,1,1-Trichloroethane (TCA)	ND U	0.50	1	10/26/23 13:11	
Trichloroethene (TCE)	ND U	0.50	1	10/26/23 13:11	
Trichlorofluoromethane (CFC 11)	ND U	0.50	1	10/26/23 13:11	
1,2,3-Trichloropropane	ND U	0.50	1	10/26/23 13:11	
1,2,4-Trimethylbenzene	ND U	2.0	1	10/26/23 13:11	
1,3,5-Trimethylbenzene	ND U	2.0	1	10/26/23 13:11	
Vinyl Chloride	ND U	0.50	1	10/26/23 13:11	
o-Xylene	ND U	0.50	1	10/26/23 13:11	
m,p-Xylenes	ND U	0.50	1	10/26/23 13:11	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	10/26/23 13:11	
Dibromofluoromethane	105	73 - 122	10/26/23 13:11	
Toluene-d8	99	65 - 144	10/26/23 13:11	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Analyzed:**	10/26/23
Sample Matrix:	Water	**Date Extracted:**	NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	821891

	Lab Control Sample KQ2319194-03			Duplicate Lab Control Sample KQ2319194-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1,2-Tetrachloroethane	9.29	10.0	93	9.19	10.0	92	66-124	1	30
1,1,1-Trichloroethane (TCA)	9.34	10.0	93	9.35	10.0	94	59-136	<1	30
1,1,2,2-Tetrachloroethane	8.41	10.0	84	8.54	10.0	85	70-127	2	30
1,1,2-Trichloroethane	9.10	10.0	91	8.96	10.0	90	74-118	2	30
1,1-Dichloroethane	9.02	10.0	90	8.92	10.0	89	68-132	1	30
1,1-Dichloroethene	8.20	10.0	82	8.11	10.0	81	66-129	1	30
1,1-Dichloropropene	9.14	10.0	91	9.00	10.0	90	59-134	2	30
1,2,3-Trichlorobenzene	8.74	10.0	87	9.59	10.0	96	68-120	9	30
1,2,3-Trichloropropane	8.60	10.0	86	8.93	10.0	89	69-123	4	30
1,2,4-Trichlorobenzene	8.36	10.0	84	8.72	10.0	87	58-126	4	30
1,2,4-Trimethylbenzene	8.76	10.0	88	8.61	10.0	86	63-122	2	30
1,2-Dibromo-3-chloropropane	6.81	10.0	68	7.25	10.0	73	55-132	6	30
1,2-Dibromoethane (EDB)	9.70	10.0	97	9.66	10.0	97	74-118	<1	30
1,2-Dichlorobenzene	8.68	10.0	87	8.55	10.0	86	72-115	2	30
1,2-Dichloroethane (EDC)	9.40	10.0	94	9.51	10.0	95	56-142	1	30
1,2-Dichloropropane	8.62	10.0	86	8.76	10.0	88	67-126	2	30
1,3,5-Trimethylbenzene	8.82	10.0	88	8.54	10.0	85	62-126	3	30
1,3-Dichlorobenzene	8.69	10.0	87	8.64	10.0	86	70-116	<1	30
1,3-Dichloropropane	9.02	10.0	90	8.91	10.0	89	75-116	1	30
1,4-Dichlorobenzene	8.54	10.0	85	8.50	10.0	85	73-115	<1	30
2,2-Dichloropropane	8.06	10.0	81	7.91	10.0	79	37-145	2	30
2-Butanone (MEK)	52.6	50.0	105	53.4	50.0	107	71-149	2	30
2-Chlorotoluene	8.35	10.0	84	8.24	10.0	82	55-131	1	30
2-Hexanone	50.0	50.0	100	50.6	50.0	101	59-131	1	30
4-Chlorotoluene	8.69	10.0	87	8.55	10.0	86	66-121	2	30
4-Isopropyltoluene	8.82	10.0	88	8.66	10.0	87	61-128	2	30
4-Methyl-2-pentanone (MIBK)	48.1	50.0	96	49.8	50.0	100	64-134	4	30
Acetone	54.7	50.0	109	55.0	50.0	110	68-135	<1	30
Benzene	9.11	10.0	91	9.06	10.0	91	69-124	<1	30
Bromobenzene	8.74	10.0	87	8.65	10.0	87	72-116	1	30
Bromochloromethane	10.2	10.0	102	10.2	10.0	102	75-131	<1	30
Bromodichloromethane	9.44	10.0	94	9.39	10.0	94	63-129	<1	30
Bromoform	9.29	10.0	93	9.11	10.0	91	52-144	2	30
Bromomethane	8.40	10.0	84	8.71	10.0	87	35-113	4	30
Carbon Disulfide	16.8	20.0	84	16.3	20.0	82	46-144	3	30
Carbon Tetrachloride	9.64	10.0	96	9.46	10.0	95	55-140	2	30
Chlorobenzene	9.40	10.0	94	9.16	10.0	92	72-116	3	30
Chloroethane	8.93	10.0	89	8.11	10.0	81	58-134	10	30
Chloroform	9.86	10.0	99	9.90	10.0	99	70-129	<1	30
Chloromethane	7.63	10.0	76	7.47	10.0	75	34-130	2	30
cis-1,2-Dichloroethene	9.15	10.0	92	9.24	10.0	92	71-118	<1	30

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Analyzed:**	10/26/23
Sample Matrix:	Water	**Date Extracted:**	NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	**Units:**	ug/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	821891

	Lab Control Sample KQ2319194-03			Duplicate Lab Control Sample KQ2319194-04					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
cis-1,3-Dichloropropene	7.72	10.0	77	7.83	10.0	78	62-132	1	30
Dibromochloromethane	8.34	10.0	83	8.38	10.0	84	67-126	<1	30
Dibromomethane	9.78	10.0	98	10.1	10.0	101	69-128	3	30
Dichlorodifluoromethane	7.27	10.0	73	7.17	10.0	72	32-124	1	30
Ethylbenzene	9.42	10.0	94	9.20	10.0	92	67-121	2	30
Hexachlorobutadiene	8.48	10.0	85	8.48	10.0	85	57-119	<1	30
Isopropylbenzene	8.85	10.0	89	8.51	10.0	85	67-129	4	30
m,p-Xylenes	19.1	20.0	95	18.6	20.0	93	69-121	2	30
Methylene Chloride	9.11	10.0	91	9.05	10.0	91	71-122	<1	30
Naphthalene	7.27	10.0	73	8.08	10.0	81	64-126	11	30
n-Butylbenzene	8.62	10.0	86	8.37	10.0	84	55-130	3	30
n-Propylbenzene	8.55	10.0	86	8.32	10.0	83	61-124	3	30
o-Xylene	9.37	10.0	94	9.14	10.0	91	71-119	2	30
sec-Butylbenzene	9.21	10.0	92	9.00	10.0	90	59-128	2	30
Styrene	9.49	10.0	95	9.31	10.0	93	74-121	2	30
tert-Butylbenzene	8.57	10.0	86	8.36	10.0	84	61-127	2	30
Tetrachloroethene (PCE)	9.18	10.0	92	8.85	10.0	89	62-126	4	30
Toluene	9.04	10.0	90	9.07	10.0	91	69-124	<1	30
trans-1,2-Dichloroethene	9.30	10.0	93	9.21	10.0	92	67-125	<1	30
trans-1,3-Dichloropropene	7.58	10.0	76	7.51	10.0	75	59-125	<1	30
Trichloroethene (TCE)	8.97	10.0	90	8.80	10.0	88	67-128	2	30
Trichlorofluoromethane (CFC 11)	9.49	10.0	95	9.42	10.0	94	52-141	<1	30
Vinyl Chloride	8.38	10.0	84	8.22	10.0	82	55-123	2	30

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Tongass Engineering LLC **Service Request:** K2312098
Project: Petro Marine Services "Port E"/ADEC 1516.38.026
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Extraction Method: EPA 3511

Sample Name	Lab Code	Fluoranthene-d10 42 - 133	Fluorene-d10 42 - 131	Terphenyl-d14 32 - 129
Port E	K2312098-001	111	107	85
Method Blank	KQ2318920-01	118	114	110
Lab Control Sample	KQ2318920-02	118	114	90
Duplicate Lab Control Sample	KQ2318920-03	118	115	83

Analytical Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ2318920-01	**Basis:**	NA

Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method: 8270D
Prep Method: EPA 3511

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
2-Methylnaphthalene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Acenaphthene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Acenaphthylene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Anthracene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Benz(a)anthracene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Benzo(a)pyrene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Benzo(b)fluoranthene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Benzo(g,h,i)perylene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Benzo(k)fluoranthene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Chrysene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Dibenz(a,h)anthracene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Dibenzofuran	ND U	0.020	1	10/26/23 11:55	10/25/23	
Fluoranthene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Fluorene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Indeno(1,2,3-cd)pyrene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Naphthalene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Phenanthrene	ND U	0.020	1	10/26/23 11:55	10/25/23	
Pyrene	ND U	0.020	1	10/26/23 11:55	10/25/23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Fluoranthene-d10	118	42 - 133	10/26/23 11:55	
Fluorene-d10	114	42 - 131	10/26/23 11:55	
Terphenyl-d14	110	32 - 129	10/26/23 11:55	

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QA/QC Report

Client:	Tongass Engineering LLC	**Service Request:**	K2312098
Project:	Petro Marine Services "Port E"/ADEC 1516.38.026	**Date Analyzed:**	10/26/23
Sample Matrix:	Water	**Date Extracted:**	10/25/23

Duplicate Lab Control Sample Summary
Polycyclic Aromatic Hydrocarbons by GC/MS SIM

Analysis Method:	8270D	**Units:**	ug/L
Prep Method:	EPA 3511	**Basis:**	NA
		Analysis Lot:	823474

	Lab Control Sample KQ2318920-02			Duplicate Lab Control Sample KQ2318920-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2-Methylnaphthalene	3.39	2.78	122 *	3.42	2.78	123 *	48-120	<1	30
Acenaphthene	3.29	2.78	118	3.36	2.78	121	63-121	2	30
Acenaphthylene	3.10	2.78	111	3.17	2.78	114	58-124	2	30
Anthracene	3.13	2.78	113	3.17	2.78	114	68-127	2	30
Benz(a)anthracene	2.76	2.78	99	2.75	2.78	99	74-124	<1	30
Benzo(a)pyrene	3.02	2.78	109	3.07	2.78	110	75-131	2	30
Benzo(b)fluoranthene	2.85	2.78	103	2.79	2.78	100	73-136	2	30
Benzo(g,h,i)perylene	3.40	2.78	122	3.45	2.78	124	63-127	2	30
Benzo(k)fluoranthene	3.10	2.78	112	3.23	2.78	116	74-134	4	30
Chrysene	3.09	2.78	111	3.14	2.78	113	74-132	2	30
Dibenz(a,h)anthracene	3.00	2.78	108	2.99	2.78	108	59-135	<1	30
Dibenzofuran	3.19	2.78	115	3.24	2.78	117	56-132	2	30
Fluoranthene	3.35	2.78	120	3.41	2.78	123	70-127	2	30
Fluorene	3.14	2.78	113	3.22	2.78	116	68-121	2	30
Indeno(1,2,3-cd)pyrene	2.88	2.78	104	2.82	2.78	101	63-136	2	30
Naphthalene	2.71	2.78	97	2.71	2.78	98	52-115	<1	30
Phenanthrene	3.23	2.78	116	3.29	2.78	119	64-126	2	30
Pyrene	3.16	2.78	114	3.19	2.78	115	72-127	1	30

Laboratory Data Review Checklist

Completed By:

Brett Serlin

Title:

Engineer

Date:

4/17/24

Consultant Firm:

Tongass Engineering

Laboratory Name:

ALS Environmental

Laboratory Report Number:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

ADEC File Number:

1516.38.026

Hazard Identification Number:

3888

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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:

   Samples not transferred.

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:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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:

No discrepancies.

e. Data quality or usability affected?

Comments:

No.

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:

None.

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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:

Not soils analysis.

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:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

None affected.

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:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

None affected.

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:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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

Comments:

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:

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:

iv. Data quality or usability affected?

Comments:

No.

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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:

Trip blank not required for project.

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:

v. Data quality or usability affected?

Comments:

No.

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

Field duplicate not yet collected.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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

RPD (%) = 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:

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

Yes☐ No☒ N/A☐ Comments:

Only equipment used is decontaminated glass sampling container. Based on type of sampling being performed, equipment blank is deemed unnecessary.

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:

iii. Data quality or usability affected?
Comments:

No.

K2312098

Laboratory Report Date:

11/10/23

CS Site Name:

Petro Marine Ketchikan

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

   a. Defined and appropriate?

      Yes☒ No☐ N/A☐ Comments:

Yes, in the laboratory case narrative.