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

May 1, 2023

Re: 2022 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 2022 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.

**2022 Sampling**

For both the spring and fall 2022 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 2022 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.

**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 2022. Attachments 3 and 4 include the ALS Environmental laboratory reports from the 2022 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 |

While the 2022 sampling exceeds the applicable water quality standard indicated above, it shows continuous decreasing results in TAH and TAqH concentrations over the most recent five-year period and the continued decreasing trendline between 2014 and 2022. Additionally, the 2022 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 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

Brett Serlin, PE

Attachment:

1. Table 1. TAH and TAqH Results Summary
2. TAH and TAqH monitoring charts
    a. Graph 1. TAH and TAqH Monitoring 2011 to 2022 – Complete Monitoring
    b. Graph 2. TAH and TAqH Monitoring 2014 to 2022 – Post-Event Monitoring
    c. Graph 3. TAH and TAqH Monitoring 2018 to 2022 – Most Recent 5 Years
3. ALS Environmental analytical report, 5/9/22; Laboratory Data Review Checklist, 5/1/23
4. ALS Environmental analytical report, 10/26/22; Laboratory Data Review Checklist, 5/1/23

Cc: Mr. David Simmerman, Petro Marine Services, davids@petro49.com
Mr. Kris Hall, Petro Marine Services, krish@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)**

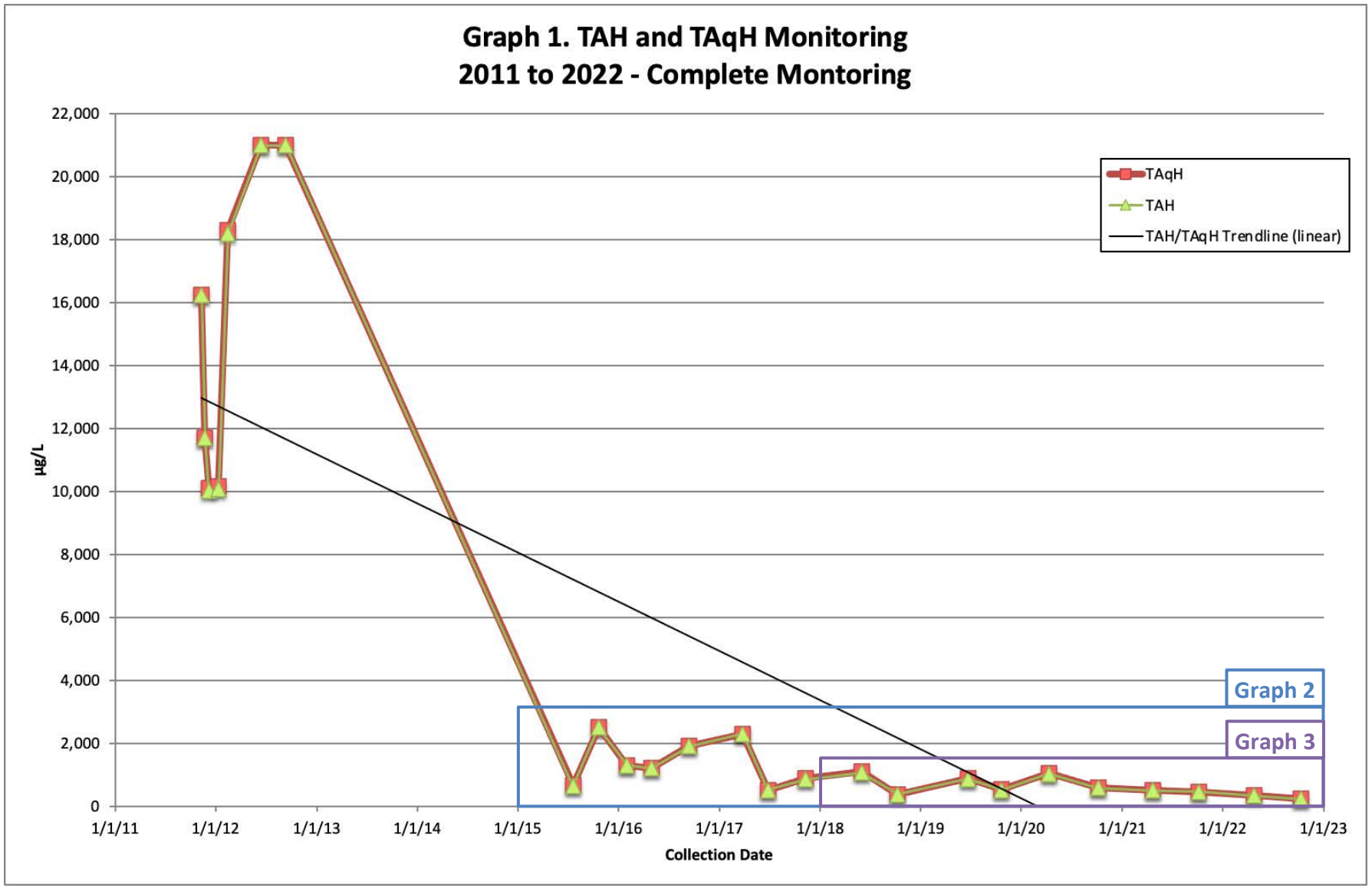
| Year | Sample Event | Collection Date | Sampler | Sample ID | TAH (µg/L) | TAqH (µg/L) |
|---|---|---|---|---|---|---|
| 2017 | Quarter 1 | 3/27/17 | Full Cycle LLC | PORT E | 2,300 | 2,300 |
| | Quarter 2 | 6/26/17 | Full Cycle LLC | PORT E | 510 | 510 |
| | Fall: Q3/Q4 | 11/8/17 | Tongass Engr | 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 |

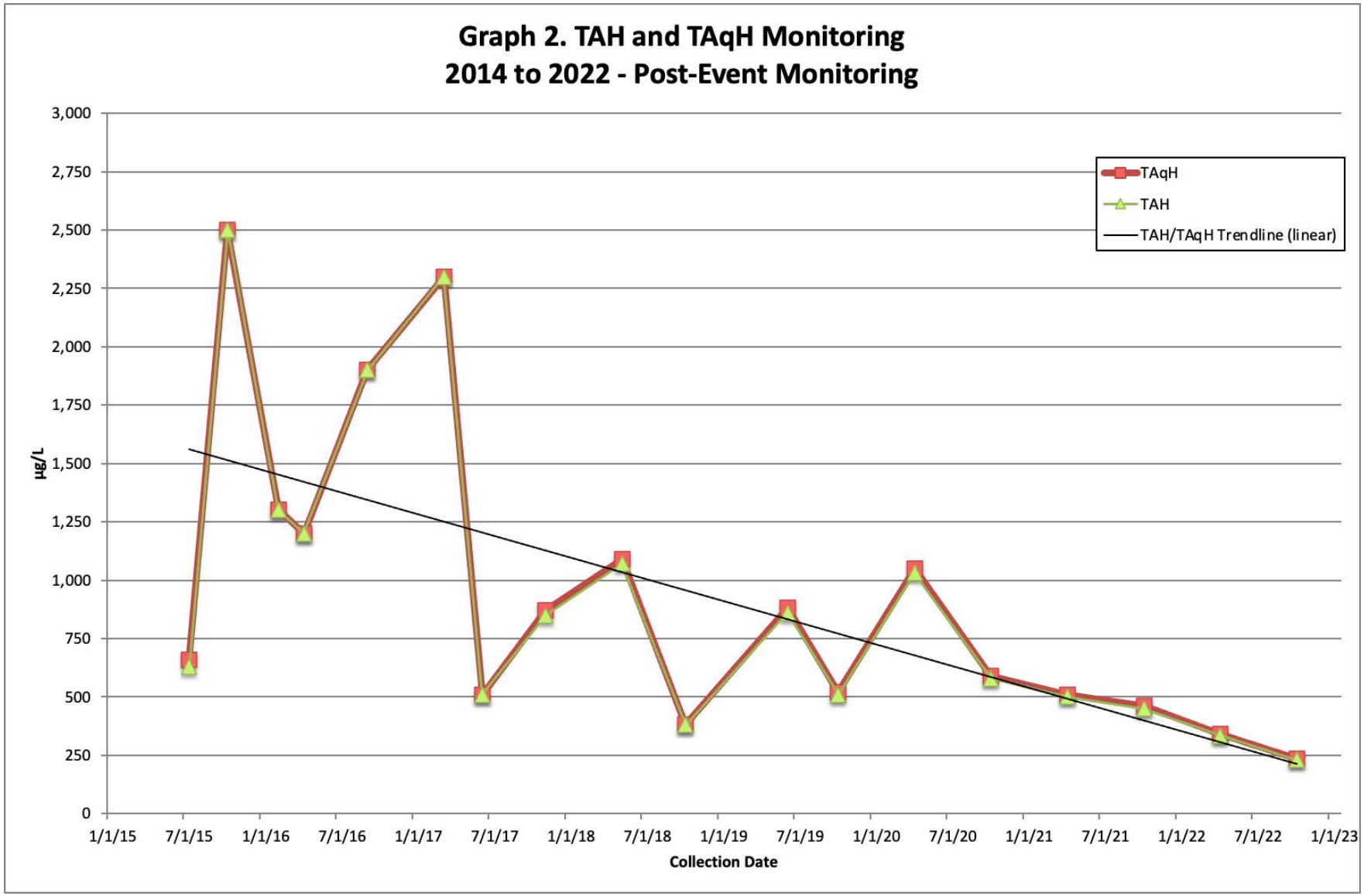
Notes: (1) Based on issues outlined in the associated lab report and the resultant data, it is believed that this sampling event should not be considered representative. This data set is not plotted in the graphical charts due to uncertainty.

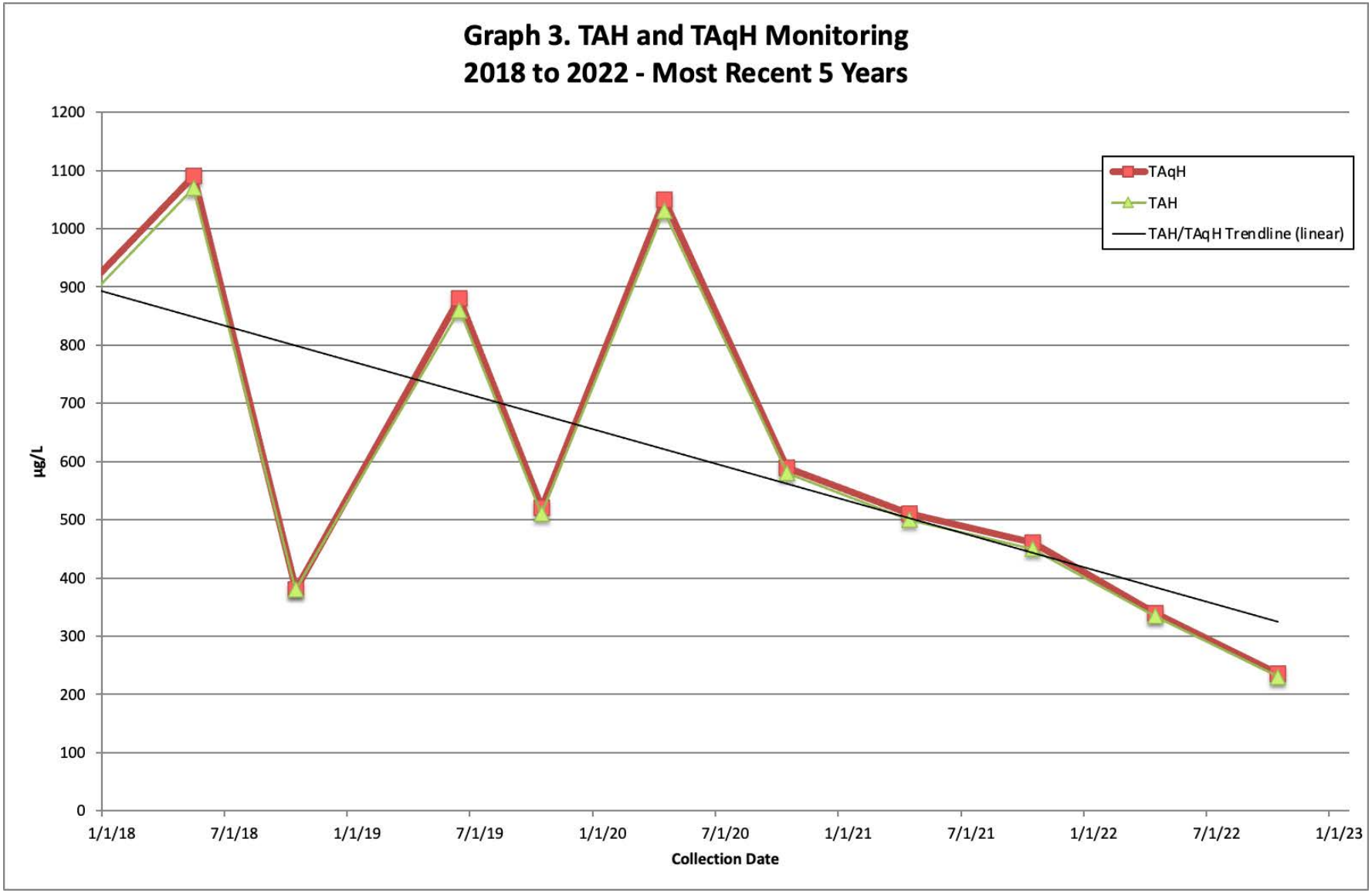
(2) The laboratory receipt notes that the samples were received outside of the required preservation temperature criteria of 4°C ± 2°C. The resultant data does not indicate that this sampling event should otherwise be considered suspect, and this data set is plotted in the graphical charts.

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

**Attachment 2**


Graph 1. TAH and TAqH Monitoring
2011 to 2022 - 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
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
Collection Date
TAqH
TAH
TAH/TAqH Trendline (linear)
Graph 2
Graph 3


Graph 2. TAH and TAqH Monitoring
2014 to 2022 - 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
Collection Date


Graph 3. TAH and TAqH Monitoring
2018 to 2022 - Most Recent 5 Years
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
µg/l
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
Collection Date
TAqH
TAH
TAH/TAqH Trendline (linear)

**Attachment 3**

May 09, 2022 Service Request No:K2204445

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 27, 2022
For your reference, these analyses have been assigned our service request number **K2204445.**

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:** Petro Marine Services
**Project:** Petro Marine Services "Port E"
**Sample Matrix:** Water

**Service Request:** K2204445
**Date Received:** 04/27/2022

## 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 04/27/2022. 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, 05/06/2022:Fluoranthene-d10 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.

**Volatiles by GC/MS:**

Method 8260C, 05/05/2022:Several analytes 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, 05/05/2022: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 05/09/2022

## 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: K2204445-001 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| Benzene | 230 | | | 5.0 | ug/L | 8260C |
| sec-Butylbenzene | 4.4 | | | 2.0 | ug/L | 8260C |
| Carbon Disulfide | 0.55 | | | 0.50 | ug/L | 8260C |
| Ethylbenzene | 57 | | | 0.50 | ug/L | 8260C |
| Isopropylbenzene | 26 | | | 2.0 | ug/L | 8260C |
| Naphthalene | 2.9 | | | 2.0 | ug/L | 8260C |
| n-Propylbenzene | 62 | | | 2.0 | ug/L | 8260C |
| Toluene | 7.3 | | | 0.50 | ug/L | 8260C |
| 1,2,4-Trimethylbenzene | 35 | | | 2.0 | ug/L | 8260C |
| o-Xylene | 1.9 | | | 0.50 | ug/L | 8260C |
| m,p-Xylenes | 39 | | | 0.50 | ug/L | 8260C |
| 2-Methylnaphthalene | 0.27 | | | 0.022 | ug/L | 8270D |
| Acenaphthene | 0.59 | | | 0.022 | ug/L | 8270D |
| Acenaphthylene | 0.13 | | | 0.022 | ug/L | 8270D |
| Anthracene | 0.042 | | | 0.022 | ug/L | 8270D |
| Dibenzofuran | 0.25 | | | 0.022 | ug/L | 8270D |
| Fluoranthene | 0.023 | | | 0.022 | ug/L | 8270D |
| Fluorene | 0.58 | | | 0.022 | ug/L | 8270D |
| Naphthalene | 4.4 | | | 0.022 | ug/L | 8270D |
| Phenanthrene | 0.14 | | | 0.022 | ug/L | 8270D |
| Pyrene | 0.033 | | | 0.022 | ug/L | 8270D |

# 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:** Petro Marine Services **Service Request:**K2204445

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

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| K2204445-001 | Port E | 4/25/2022 | 1510 |

# Chain of Custody

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.: 122737** K2204425

| | | | | | |
|---|---|---|---|---|---|
| **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 | 8260C / VOC FP |
|---|---|---|---|---|---|---|---|
| 1. Port E | WT | 4/25/22 | 1510 | | 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 | 4/26/22 @ 1230 | ALS | | 4/27/22 12pm |
| | | | | | |

PM MH

# Cooler Receipt and Preservation Form

Client Petro Marine Services Service Request K22 0414415

Received: 4/27/22 Opened: 4/27/22 By: [illegible] Unloaded: 4/27/22 By: [illegible]

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 |
|---|---|---|---|---|---|---|---|
| 5.1 | | IR01 | 122737 | — | — | 027926006312 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

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 # below 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 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Under filled 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:** | Petro Marine Services | **Service Request:** | K2204445 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | | |

| | | | |
|---|---|---|---|
| **Sample Name:** | Port E | **Date Collected:** | 04/25/22 |
| **Lab Code:** | K2204445-001 | **Date Received:** | 04/27/22 |
| **Sample Matrix:** | Water | | |

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| 8260C | | MKANALY |
| 8270D | GTRIGG | EBRUNO |

| | | | |
|---|---|---|---|
| **Sample Name:** | Port E | **Date Collected:** | 04/25/22 |
| **Lab Code:** | K2204445-001.R01 | **Date Received:** | 04/27/22 |
| **Sample Matrix:** | Water | | |

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| 8260C | | MKANALY |

# Sample Results

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

# Volatile 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

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 04/25/22 15:10 |
| **Sample Matrix:** | Water | **Date Received:** | 04/27/22 12:00 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2204445-001 | **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 | 05/05/22 15:42 | |
| Benzene | **230** | | 5.0 | 10 | 05/05/22 15:16 | |
| Bromobenzene | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| Bromochloromethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Bromodichloromethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Bromoform | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Bromomethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 2-Butanone (MEK) | ND | U | 20 | 1 | 05/05/22 15:42 | |
| n-Butylbenzene | ND | U | 4.0 | 1 | 05/05/22 15:42 | |
| sec-Butylbenzene | **4.4** | | 2.0 | 1 | 05/05/22 15:42 | |
| tert-Butylbenzene | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| Carbon Disulfide | **0.55** | | 0.50 | 1 | 05/05/22 15:42 | |
| Carbon Tetrachloride | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Chlorobenzene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Chloroethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Chloroform | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Chloromethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 2-Chlorotoluene | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| 4-Chlorotoluene | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| 1,2-Dibromo-3-chloropropane | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| Dibromochloromethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2-Dibromoethane (EDB) | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| Dibromomethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2-Dichlorobenzene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,3-Dichlorobenzene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,4-Dichlorobenzene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Dichlorodifluoromethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | * |
| 1,1-Dichloroethane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2-Dichloroethane (EDC) | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,1-Dichloroethene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| cis-1,2-Dichloroethene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| trans-1,2-Dichloroethene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2-Dichloropropane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,3-Dichloropropane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 2,2-Dichloropropane | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,1-Dichloropropene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| cis-1,3-Dichloropropene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| trans-1,3-Dichloropropene | ND | U | 0.50 | 1 | 05/05/22 15:42 | |
| Ethylbenzene | **57** | | 0.50 | 1 | 05/05/22 15:42 | |
| Hexachlorobutadiene | ND | U | 2.0 | 1 | 05/05/22 15:42 | |
| 2-Hexanone | ND | U | 20 | 1 | 05/05/22 15:42 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 04/25/22 15:10 |
| **Sample Matrix:** | Water | **Date Received:** | 04/27/22 12:00 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2204445-001 | **Basis:** | NA |

## Volatile Organic Compounds by GC/MS

**Analysis Method:** 8260C
**Prep Method:** None

| Analyte Name | Result | MRL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|
| Isopropylbenzene | **26** | 2.0 | 1 | 05/05/22 15:42 | |
| 4-Isopropyltoluene | ND U | 2.0 | 1 | 05/05/22 15:42 | |
| 4-Methyl-2-pentanone (MIBK) | ND U | 20 | 1 | 05/05/22 15:42 | |
| Methylene Chloride | ND U | 2.0 | 1 | 05/05/22 15:42 | |
| Naphthalene | **2.9** | 2.0 | 1 | 05/05/22 15:42 | * |
| n-Propylbenzene | **62** | 2.0 | 1 | 05/05/22 15:42 | |
| Styrene | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,1,1,2-Tetrachloroethane | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,1,2,2-Tetrachloroethane | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| Tetrachloroethene (PCE) | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| Toluene | **7.3** | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2,3-Trichlorobenzene | ND U | 2.0 | 1 | 05/05/22 15:42 | * |
| 1,2,4-Trichlorobenzene | ND U | 2.0 | 1 | 05/05/22 15:42 | * |
| 1,1,2-Trichloroethane | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,1,1-Trichloroethane (TCA) | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| Trichloroethene (TCE) | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| Trichlorofluoromethane (CFC 11) | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2,3-Trichloropropane | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| 1,2,4-Trimethylbenzene | **35** | 2.0 | 1 | 05/05/22 15:42 | |
| 1,3,5-Trimethylbenzene | ND U | 2.0 | 1 | 05/05/22 15:42 | |
| Vinyl Chloride | ND U | 0.50 | 1 | 05/05/22 15:42 | |
| o-Xylene | **1.9** | 0.50 | 1 | 05/05/22 15:42 | |
| m,p-Xylenes | **39** | 0.50 | 1 | 05/05/22 15:42 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 4-Bromofluorobenzene | 72 | 68 - 117 | 05/05/22 15:42 | |
| Dibromofluoromethane | 93 | 73 - 122 | 05/05/22 15:42 | |
| Toluene-d8 | 96 | 65 - 144 | 05/05/22 15:42 | |

# 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

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 04/25/22 15:10 |
| **Sample Matrix:** | Water | **Date Received:** | 04/27/22 12:00 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2204445-001 | **Basis:** | NA |

## Polycyclic Aromatic Hydrocarbons by GC/MS SIM

**Analysis Method:** 8270D
**Prep Method:** EPA 3520C

| Analyte Name | Result | | MRL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | **0.27** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Acenaphthene | **0.59** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Acenaphthylene | **0.13** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Anthracene | **0.042** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Benz(a)anthracene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Benzo(a)pyrene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Benzo(b)fluoranthene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Benzo(g,h,i)perylene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Benzo(k)fluoranthene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Chrysene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Dibenz(a,h)anthracene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Dibenzofuran | **0.25** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Fluoranthene | **0.023** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Fluorene | **0.58** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Indeno(1,2,3-cd)pyrene | ND | U | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Naphthalene | **4.4** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Phenanthrene | **0.14** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |
| Pyrene | **0.033** | | 0.022 | 1 | 05/05/22 20:29 | 4/28/22 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Fluoranthene-d10 | 55 | 42 - 133 | 05/05/22 20:29 | |
| Fluorene-d10 | 74 | 42 - 131 | 05/05/22 20:29 | |
| Terphenyl-d14 | 79 | 32 - 129 | 05/05/22 20:29 | |

# QC Summary Forms

**ALS Environmental—Kelso Laboratory**
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Phone (360) 577-7222 Fax (360) 425-9096
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# Volatile 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:** Petro Marine Services **Service Request:** K2204445

**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 | K2204445-001 | 72 | 93 | 96 |
| Method Blank | KQ2207385-05 | 74 | 100 | 91 |
| Lab Control Sample | KQ2207385-03 | 87 | 93 | 97 |
| Duplicate Lab Control Sample | KQ2207385-04 | 90 | 92 | 96 |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **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:** | KQ2207385-05 | **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 | 05/05/22 12:37 | |
| Benzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Bromobenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Bromochloromethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Bromodichloromethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Bromoform | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Bromomethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 2-Butanone (MEK) | ND U | 20 | 1 | 05/05/22 12:37 | |
| n-Butylbenzene | ND U | 4.0 | 1 | 05/05/22 12:37 | |
| sec-Butylbenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| tert-Butylbenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Carbon Disulfide | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Carbon Tetrachloride | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Chlorobenzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Chloroethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Chloroform | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Chloromethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 2-Chlorotoluene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 4-Chlorotoluene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 1,2-Dibromo-3-chloropropane | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Dibromochloromethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2-Dibromoethane (EDB) | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Dibromomethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2-Dichlorobenzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,3-Dichlorobenzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,4-Dichlorobenzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Dichlorodifluoromethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1-Dichloroethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2-Dichloroethane (EDC) | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1-Dichloroethene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| cis-1,2-Dichloroethene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| trans-1,2-Dichloroethene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2-Dichloropropane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,3-Dichloropropane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 2,2-Dichloropropane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1-Dichloropropene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| cis-1,3-Dichloropropene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| trans-1,3-Dichloropropene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Ethylbenzene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Hexachlorobutadiene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 2-Hexanone | ND U | 20 | 1 | 05/05/22 12:37 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **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:** | KQ2207385-05 | **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 | 05/05/22 12:37 | |
| 4-Isopropyltoluene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 4-Methyl-2-pentanone (MIBK) | ND U | 20 | 1 | 05/05/22 12:37 | |
| Methylene Chloride | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Naphthalene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| n-Propylbenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Styrene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1,1,2-Tetrachloroethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1,2,2-Tetrachloroethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Tetrachloroethene (PCE) | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Toluene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2,3-Trichlorobenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 1,2,4-Trichlorobenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 1,1,2-Trichloroethane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,1,1-Trichloroethane (TCA) | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Trichloroethene (TCE) | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| Trichlorofluoromethane (CFC 11) | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2,3-Trichloropropane | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| 1,2,4-Trimethylbenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| 1,3,5-Trimethylbenzene | ND U | 2.0 | 1 | 05/05/22 12:37 | |
| Vinyl Chloride | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| o-Xylene | ND U | 0.50 | 1 | 05/05/22 12:37 | |
| m,p-Xylenes | ND U | 0.50 | 1 | 05/05/22 12:37 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 4-Bromofluorobenzene | 74 | 68 - 117 | 05/05/22 12:37 | |
| Dibromofluoromethane | 100 | 73 - 122 | 05/05/22 12:37 | |
| Toluene-d8 | 91 | 65 - 144 | 05/05/22 12:37 | |

# 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:** Petro Marine Services **Service Request:** K2204445

**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 3520C

| Sample Name | Lab Code | Fluoranthene-d10 42-133 | Fluorene-d10 42-131 | Terphenyl-d14 32-129 |
|---|---|---|---|---|
| Port E | K2204445-001 | 55 | 74 | 79 |
| Method Blank | KQ2206666-03 | 72 | 92 | 93 |
| Lab Control Sample | KQ2206666-01 | 97 | 86 | 99 |
| Duplicate Lab Control Sample | KQ2206666-02 | 92 | 84 | 94 |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Petro Marine Services | **Service Request:** | K2204445 |
| **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:** | KQ2206666-03 | **Basis:** | NA |

## Polycyclic Aromatic Hydrocarbons by GC/MS SIM

**Analysis Method:** 8270D
**Prep Method:** EPA 3520C

| Analyte Name | Result | MRL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Acenaphthene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Acenaphthylene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Anthracene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Benz(a)anthracene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Benzo(a)pyrene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Benzo(b)fluoranthene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Benzo(g,h,i)perylene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Benzo(k)fluoranthene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Chrysene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Dibenz(a,h)anthracene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Dibenzofuran | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Fluoranthene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Fluorene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Indeno(1,2,3-cd)pyrene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Naphthalene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Phenanthrene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |
| Pyrene | ND U | 0.022 | 1 | 05/05/22 19:12 | 4/28/22 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Fluoranthene-d10 | 72 | 42 - 133 | 05/05/22 19:12 | |
| Fluorene-d10 | 92 | 42 - 131 | 05/05/22 19:12 | |
| Terphenyl-d14 | 93 | 32 - 129 | 05/05/22 19:12 | |

# Laboratory Data Review Checklist

Completed By:

Brett Serlin

Title:

Engineer

Date:

5/1/23

Consultant Firm:

Tongass Engineering

Laboratory Name:

ALS Environmental

Laboratory Report Number:

K2204445

Laboratory Report Date:

5/9/22

CS Site Name:

Petro Marine Ketchikan

ADEC File Number:

1516.38.026

Hazard Identification Number:

3888

K2204445

Laboratory Report Date:

5/9/22

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:

K2204445

Laboratory Report Date:

5/9/22

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.

K2204445

Laboratory Report Date:

5/9/22

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:

K2204445

Laboratory Report Date:

5/9/22

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:

K2204445

Laboratory Report Date:

5/9/22

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:

K2204445

Laboratory Report Date:

5/9/22

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.

K2204445

Laboratory Report Date:

5/9/22

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:

K2204445

Laboratory Report Date:

5/9/22

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.

K2204445

Laboratory Report Date:

5/9/22

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**

October 26, 2022 Service Request No:K2211931

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 12, 2022
For your reference, these analyses have been assigned our service request number **K2211931.**

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

ALS Environmental

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

**Service Request:** K2211931
**Date Received:** 10/12/2022

## 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 10/12/2022. 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:**

No significant anomalies were noted with this analysis.

**Volatiles by GC/MS:**

Method 8260C, 10/21/2022:The upper control criterion was exceeded for Acetone in Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did contain the analyte in question. The apparent problem indicated a potential high bias.

Method 8260C, 10/21/2022:Several analytes 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, 10/21/2022:Sample required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Method 8260C, 10/21/2022:The advisory criterion was exceeded for Acetone and 4-Methyl-2-pentanone (MIBK) in replicate Laboratory Control Sample (LCS/DLCS). 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 only. No further corrective action was required.

Method 8260C, 10/21/2022:The upper control criterion was exceeded for 2-Hexanone in Duplicate Laboratory Control Sample (DLCS). The analyte in question was not detected in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Approved by Noe D. Dave Date 10/26/2022

## 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: K2211931-001 | | | |
|---|---|---|---|---|---|---|
| **Analyte** | **Results** | **Flag** | **MDL** | **MRL** | **Units** | **Method** |
| 1,2,4-Trimethylbenzene | 8.0 | | | 2.0 | ug/L | 8260C |
| 2-Methylnaphthalene | 0.13 | | | 0.022 | ug/L | 8270D |
| Acenaphthene | 0.46 | | | 0.022 | ug/L | 8270D |
| Acenaphthylene | 0.093 | | | 0.022 | ug/L | 8270D |
| Acetone | 35 | | | 20 | ug/L | 8260C |
| Anthracene | 0.031 | | | 0.022 | ug/L | 8270D |
| Benzene | 190 | | | 5.0 | ug/L | 8260C |
| Dibenzofuran | 0.20 | | | 0.022 | ug/L | 8270D |
| Ethylbenzene | 14 | | | 0.50 | ug/L | 8260C |
| Fluoranthene | 0.032 | | | 0.022 | ug/L | 8270D |
| Fluorene | 0.35 | | | 0.022 | ug/L | 8270D |
| Isopropylbenzene | 21 | | | 2.0 | ug/L | 8260C |
| m,p-Xylenes | 21 | | | 0.50 | ug/L | 8260C |
| Naphthalene | 2.2 | | | 2.0 | ug/L | 8260C |
| Naphthalene | 1.3 | | | 0.022 | ug/L | 8270D |
| n-Propylbenzene | 26 | | | 2.0 | ug/L | 8260C |
| o-Xylene | 0.81 | | | 0.50 | ug/L | 8260C |
| Phenanthrene | 0.078 | | | 0.022 | ug/L | 8270D |
| Pyrene | 0.036 | | | 0.022 | ug/L | 8270D |
| sec-Butylbenzene | 3.8 | | | 2.0 | ug/L | 8260C |
| Toluene | 4.1 | | | 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:**K2211931

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

## SAMPLE CROSS-REFERENCE

| SAMPLE # | CLIENT SAMPLE ID | DATE | TIME |
|---|---|---|---|
| K2211931-001 | Port E | 10/11/2022 | 0950 |

# Chain of Custody

K2211931

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.: 125972**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Manager:** | Brett Serlin, Tongass Engineering | | | **Bill to:** | Brett Serlin | | |
| **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<br>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**

| Sample Identification | Matrix | Date Sampled | Time Sampled | Lab ID | No. of Containers | 8270D / PAH | 8260C / VOC FP |
|---|---|---|---|---|---|---|---|
| 1. Port E | WT | 10/11/22 | 0950 akdt | | 6 | ✓ | ✓ |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. | | | | | | | |
| 7. | | | | | | | |
| 8. | | | | | | | |
| 9. | | | | | | | |
| 10. | | | | | | | |
| 11. | | | | | | | |
| 12. | | | | | | | |
| 13. | | | | | | | |

**TAT**

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

**Surcharges. Please call for availability**

**Due Date:**

**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 | 10/11/22 @ 1430 | Marielyn Mitolo | | 10/12/22 1530 |
| | | | | | |

PM MH

# Cooler Receipt and Preservation Form

Client Tonyess Service Request K22 11931

Received: 10/12/22 Opened: 10/12/22 By: AP Unloaded: 10/12/22 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? 1 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 |
|---|---|---|---|---|---|---|---|
| 4.6 | | 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 # below 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 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Under filled 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: _____

_____

*1/13/22* *Page ____ of ____*

# Miscellaneous Forms

**ALS Environmental—Kelso Laboratory**
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## 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:** | K2211931 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | | |

| | | | |
|---|---|---|---|
| **Sample Name:** | Port E | **Date Collected:** | 10/11/22 |
| **Lab Code:** | K2211931-001 | **Date Received:** | 10/12/22 |
| **Sample Matrix:** | Water | | |

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| 8260C | | EWANOUS |
| 8270D | TRICKMAN | EBRUNO |

| | | | |
|---|---|---|---|
| **Sample Name:** | Port E | **Date Collected:** | 10/11/22 |
| **Lab Code:** | K2211931-001.R01 | **Date Received:** | 10/12/22 |
| **Sample Matrix:** | Water | | |

| Analysis Method | Extracted/Digested By | Analyzed By |
|---|---|---|
| 8260C | | EWANOUS |

# Sample Results

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# Volatile Organic Compounds by GC/MS

**ALS Environmental—Kelso Laboratory**
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Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 10/11/22 09:50 |
| **Sample Matrix:** | Water | **Date Received:** | 10/12/22 15:30 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2211931-001 | **Basis:** | NA |

## Volatile Organic Compounds by GC/MS

**Analysis Method:** 8260C
**Prep Method:** None

| Analyte Name | Result | | MRL | Dil. | Date Analyzed | Q |
|---|---|---|---|---|---|---|
| Acetone | **35** | | 20 | 1 | 10/21/22 20:00 | * |
| Benzene | **190** | | 5.0 | 10 | 10/21/22 19:36 | |
| Bromobenzene | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| Bromochloromethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Bromodichloromethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Bromoform | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Bromomethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | * |
| 2-Butanone (MEK) | ND | U | 20 | 1 | 10/21/22 20:00 | * |
| n-Butylbenzene | ND | U | 4.0 | 1 | 10/21/22 20:00 | |
| sec-Butylbenzene | **3.8** | | 2.0 | 1 | 10/21/22 20:00 | |
| tert-Butylbenzene | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| Carbon Disulfide | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Carbon Tetrachloride | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Chlorobenzene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Chloroethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Chloroform | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Chloromethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 2-Chlorotoluene | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| 4-Chlorotoluene | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| 1,2-Dibromo-3-chloropropane | ND | U | 2.0 | 1 | 10/21/22 20:00 | * |
| Dibromochloromethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2-Dibromoethane (EDB) | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| Dibromomethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2-Dichlorobenzene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,3-Dichlorobenzene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,4-Dichlorobenzene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Dichlorodifluoromethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1-Dichloroethane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2-Dichloroethane (EDC) | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1-Dichloroethene | ND | U | 0.50 | 1 | 10/21/22 20:00 | * |
| cis-1,2-Dichloroethene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| trans-1,2-Dichloroethene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2-Dichloropropane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,3-Dichloropropane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 2,2-Dichloropropane | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1-Dichloropropene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| cis-1,3-Dichloropropene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| trans-1,3-Dichloropropene | ND | U | 0.50 | 1 | 10/21/22 20:00 | |
| Ethylbenzene | **14** | | 0.50 | 1 | 10/21/22 20:00 | |
| Hexachlorobutadiene | ND | U | 2.0 | 1 | 10/21/22 20:00 | |
| 2-Hexanone | ND | U | 20 | 1 | 10/21/22 20:00 | * |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 10/11/22 09:50 |
| **Sample Matrix:** | Water | **Date Received:** | 10/12/22 15:30 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2211931-001 | **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 | 10/21/22 20:00 | |
| 4-Isopropyltoluene | ND U | 2.0 | 1 | 10/21/22 20:00 | |
| 4-Methyl-2-pentanone (MIBK) | ND U | 20 | 1 | 10/21/22 20:00 | * |
| Methylene Chloride | ND U | 2.0 | 1 | 10/21/22 20:00 | |
| Naphthalene | **2.2** | 2.0 | 1 | 10/21/22 20:00 | * |
| n-Propylbenzene | **26** | 2.0 | 1 | 10/21/22 20:00 | |
| Styrene | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1,1,2-Tetrachloroethane | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1,2,2-Tetrachloroethane | ND U | 0.50 | 1 | 10/21/22 20:00 | * |
| Tetrachloroethene (PCE) | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| Toluene | **4.1** | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2,3-Trichlorobenzene | ND U | 2.0 | 1 | 10/21/22 20:00 | |
| 1,2,4-Trichlorobenzene | ND U | 2.0 | 1 | 10/21/22 20:00 | |
| 1,1,2-Trichloroethane | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,1,1-Trichloroethane (TCA) | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| Trichloroethene (TCE) | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| Trichlorofluoromethane (CFC 11) | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| 1,2,3-Trichloropropane | ND U | 0.50 | 1 | 10/21/22 20:00 | * |
| 1,2,4-Trimethylbenzene | **8.0** | 2.0 | 1 | 10/21/22 20:00 | |
| 1,3,5-Trimethylbenzene | ND U | 2.0 | 1 | 10/21/22 20:00 | |
| Vinyl Chloride | ND U | 0.50 | 1 | 10/21/22 20:00 | |
| o-Xylene | **0.81** | 0.50 | 1 | 10/21/22 20:00 | |
| m,p-Xylenes | **21** | 0.50 | 1 | 10/21/22 20:00 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 4-Bromofluorobenzene | 82 | 68 - 117 | 10/21/22 20:00 | |
| Dibromofluoromethane | 105 | 73 - 122 | 10/21/22 20:00 | |
| Toluene-d8 | 106 | 65 - 144 | 10/21/22 20:00 | |

# Semivolatile Organic Compounds by GC/MS

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www.alsglobal.com

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **Project:** | Petro Marine Services "Port E"/ADEC 1516.38.026 | **Date Collected:** | 10/11/22 09:50 |
| **Sample Matrix:** | Water | **Date Received:** | 10/12/22 15:30 |
| **Sample Name:** | Port E | **Units:** | ug/L |
| **Lab Code:** | K2211931-001 | **Basis:** | NA |

## Polycyclic Aromatic Hydrocarbons by GC/MS SIM

**Analysis Method:** 8270D
**Prep Method:** EPA 3520C

| Analyte Name | Result | | MRL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | **0.13** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Acenaphthene | **0.46** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Acenaphthylene | **0.093** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Anthracene | **0.031** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Benz(a)anthracene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Benzo(a)pyrene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Benzo(b)fluoranthene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Benzo(g,h,i)perylene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Benzo(k)fluoranthene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Chrysene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Dibenz(a,h)anthracene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Dibenzofuran | **0.20** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Fluoranthene | **0.032** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Fluorene | **0.35** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Indeno(1,2,3-cd)pyrene | ND | U | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Naphthalene | **1.3** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Phenanthrene | **0.078** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |
| Pyrene | **0.036** | | 0.022 | 1 | 10/20/22 19:40 | 10/14/22 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Fluoranthene-d10 | 78 | 42 - 133 | 10/20/22 19:40 | |
| Fluorene-d10 | 79 | 42 - 131 | 10/20/22 19:40 | |
| Terphenyl-d14 | 69 | 32 - 129 | 10/20/22 19:40 | |

# QC Summary Forms

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# Volatile Organic Compounds by GC/MS

**ALS Environmental—Kelso Laboratory**
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**Client:** Tongass Engineering LLC **Service Request:** K2211931
**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 | K2211931-001 | 82 | 105 | 106 |
| Method Blank | KQ2218546-05 | 97 | 108 | 105 |
| Lab Control Sample | KQ2218546-03 | 105 | 108 | 107 |
| Duplicate Lab Control Sample | KQ2218546-04 | 107 | 108 | 108 |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **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:** | KQ2218546-05 | **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 | 10/21/22 12:45 | |
| Benzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Bromobenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Bromochloromethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Bromodichloromethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Bromoform | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Bromomethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 2-Butanone (MEK) | ND U | 20 | 1 | 10/21/22 12:45 | |
| n-Butylbenzene | ND U | 4.0 | 1 | 10/21/22 12:45 | |
| sec-Butylbenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| tert-Butylbenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Carbon Disulfide | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Carbon Tetrachloride | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Chlorobenzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Chloroethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Chloroform | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Chloromethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 2-Chlorotoluene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 4-Chlorotoluene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 1,2-Dibromo-3-chloropropane | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Dibromochloromethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2-Dibromoethane (EDB) | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Dibromomethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2-Dichlorobenzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,3-Dichlorobenzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,4-Dichlorobenzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Dichlorodifluoromethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1-Dichloroethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2-Dichloroethane (EDC) | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1-Dichloroethene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| cis-1,2-Dichloroethene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| trans-1,2-Dichloroethene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2-Dichloropropane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,3-Dichloropropane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 2,2-Dichloropropane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1-Dichloropropene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| cis-1,3-Dichloropropene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| trans-1,3-Dichloropropene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Ethylbenzene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Hexachlorobutadiene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 2-Hexanone | ND U | 20 | 1 | 10/21/22 12:45 | |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **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:** | KQ2218546-05 | **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 | 10/21/22 12:45 | |
| 4-Isopropyltoluene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 4-Methyl-2-pentanone (MIBK) | ND U | 20 | 1 | 10/21/22 12:45 | |
| Methylene Chloride | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Naphthalene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| n-Propylbenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Styrene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1,1,2-Tetrachloroethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1,2,2-Tetrachloroethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Tetrachloroethene (PCE) | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Toluene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2,3-Trichlorobenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 1,2,4-Trichlorobenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 1,1,2-Trichloroethane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,1,1-Trichloroethane (TCA) | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Trichloroethene (TCE) | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| Trichlorofluoromethane (CFC 11) | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2,3-Trichloropropane | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| 1,2,4-Trimethylbenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| 1,3,5-Trimethylbenzene | ND U | 2.0 | 1 | 10/21/22 12:45 | |
| Vinyl Chloride | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| o-Xylene | ND U | 0.50 | 1 | 10/21/22 12:45 | |
| m,p-Xylenes | ND U | 0.50 | 1 | 10/21/22 12:45 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| 4-Bromofluorobenzene | 97 | 68 - 117 | 10/21/22 12:45 | |
| Dibromofluoromethane | 108 | 73 - 122 | 10/21/22 12:45 | |
| Toluene-d8 | 105 | 65 - 144 | 10/21/22 12:45 | |

# 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:** K2211931
**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 3520C

| Sample Name | Lab Code | Fluoranthene-d10 42-133 | Fluorene-d10 42-131 | Terphenyl-d14 32-129 |
|---|---|---|---|---|
| Port E | K2211931-001 | 78 | 79 | 69 |
| Method Blank | KQ2217896-01 | 80 | 69 | 69 |
| Lab Control Sample | KQ2217896-02 | 90 | 87 | 84 |

Analytical Report

| | | | |
|---|---|---|---|
| **Client:** | Tongass Engineering LLC | **Service Request:** | K2211931 |
| **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:** | KQ2217896-01 | **Basis:** | NA |

## Polycyclic Aromatic Hydrocarbons by GC/MS SIM

**Analysis Method:** 8270D
**Prep Method:** EPA 3520C

| Analyte Name | Result | MRL | Dil. | Date Analyzed | Date Extracted | Q |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Acenaphthene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Acenaphthylene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Anthracene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Benz(a)anthracene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Benzo(a)pyrene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Benzo(b)fluoranthene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Benzo(g,h,i)perylene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Benzo(k)fluoranthene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Chrysene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Dibenz(a,h)anthracene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Dibenzofuran | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Fluoranthene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Fluorene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Indeno(1,2,3-cd)pyrene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Naphthalene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Phenanthrene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |
| Pyrene | ND U | 0.021 | 1 | 10/20/22 10:28 | 10/14/22 | |

| Surrogate Name | % Rec | Control Limits | Date Analyzed | Q |
|---|---|---|---|---|
| Fluoranthene-d10 | 80 | 42 - 133 | 10/20/22 10:28 | |
| Fluorene-d10 | 69 | 42 - 131 | 10/20/22 10:28 | |
| Terphenyl-d14 | 69 | 32 - 129 | 10/20/22 10:28 | |

# Laboratory Data Review Checklist

Completed By:

Brett Serlin

Title:

Engineer

Date:

5/1/23

Consultant Firm:

Tongass Engineering

Laboratory Name:

ALS Environmental

Laboratory Report Number:

K2211931

Laboratory Report Date:

10/26/22

CS Site Name:

Petro Marine Ketchikan

ADEC File Number:

1516.38.026

Hazard Identification Number:

3888

K2211931

Laboratory Report Date:

10/26/22

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:

K2211931

Laboratory Report Date:

10/26/22

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.

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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:

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10/26/22

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:

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10/26/22

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:

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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.

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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:

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Laboratory Report Date:

10/26/22

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.

K2211931

Laboratory Report Date:

10/26/22

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.