Addendum to Final Groundwater Sampling Work Plan 2018 Nome Tank Site 'E' POL Contamination Nome Area Defense Region Nome, Alaska Formerly Used Defense Site F10AK005211

Contract No. W911KB-20-D-0016

Task Order No. W911KB20F0137

October 2020

Prepared for:

U.S. Army Corps of Engineers

Prepared by:
Rescon Alaska, LLC
8361 Petersburg St
Anchorage, Alaska 99507

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MEMORANDUM

DATE: October 28, 2020

TO: Michael Hooper
Environmental Program Specialist
Contaminated Sites Program
Alaska Department of Environmental Conservation
907-451-5174

FROM: Zack Kirk
Project Manager
CES-Rescon LLC.
8361 Petersburg Street
Anchorage, Alaska 99507

SUBJECT: Nome Tank Site 'E' FUDS – Addendum to 2018 Final Groundwater Sampling Work Plan

INTRODUCTION

CES-Rescon LLC (CES-Rescon) developed this addendum to the 2018 Final Groundwater Sampling Work Plan for the Nome Tank Site 'E' Formerly Used Defense Site (FUDS) in Nome, Alaska to detail groundwater monitoring activities to be performed at the facility in the fall of 2020. An electronic copy of the 2018 Work Plan (herein referred to as the "2018 WP") is provided as Attachment 1 to this document. The work described herein, will be performed by CES-Rescon on behalf of the United States Army Corps of Engineers (USACE), Alaska District, under Contract No. W911KB20D0016 and Delivery Order W911KB20F0137.

KEY PERSONNEL

A detail of the key project personnel and their roles in the project is provided below in Table 1.

TABLE-1: Project Roles and Responsibilities

NAME/ TITLE/ CONTACT INFO	RESPONSIBILITIES
Mike Macmillan USACE Project Manager (907) 753-5597	Maintaining oversight for the overall project. Responsible for the technical, quality assurance, and decision-making matters concerning project execution. Evaluates field changes and recommended solutions. Coordinates communications with regulators and stakeholders.

Michael.Macmillan@usace.army.mil		
Will Mangano USACE Environmental Engineer (907) 753-5689 William.F.Mangano@usace.army.mil	Ensuring the technical aspects of the project are carried out as intended and as presented in the approved Work Plan.	
Michael Hooper ADEC Regulator (907) 451-5174 Michael.hooper@alaska.gov	Providing regulatory project oversight.	
CES-Rescon Project Personnel	**Education/ Experience**	**Specialized Training/ Certifications**
Zack Kirk CES-Rescon Project Manager (907) 570-4806 zkirk@resconalaska.com	B.S. Environmental Science 13 years of experience	40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) 8-Hour HAZWOPER Refresher US Army Corps of Engineers Construction Quality Management DOT/IATA Hazardous Materials Shipping ADEC Qualified Environmental Professional First aid/bloodborne pathogens training Adult cardiopulmonary resuscitation/automated external defibrillator (CPR/AED) certification
Rodney Guritz, Project Chemist (907) 457-3147 rodney@arcticdataservices.com	BS Environmental Chemistry 13 years of experience	ADEC Qualified Environmental Professional 40-Hour HAZWOPER 8-Hour HAZWOPER refresher First Aid, CPR/AED certification
Moana Leirer Field Team Lead / Site Safety Officer (907) 351-5359 mleirer@resconalaska.com	B.S. Environmental Science 11 years of experience	40-Hour HAZWOPER 8-Hour HAZWOPER Refresher McCoy's 3-Day RCRA Training ADEC Qualified Environmental Professional Department of Transportation / International Air Transport Association (DOT/IATA) Hazardous Materials Shipping First aid/bloodborne pathogens training Adult CPR/AED certification

The individual resumes for the project team members are provided in Attachment 2 of this document.

SITE BACKGROUND

A detail of the site background and remedial history is provided in Section 2 of the 2018 WP. The scope of the 2018 WP consisted of the gauging and sampling of the groundwater from sixteen onsite wells. However, due to little or no measurable water in several of the locations, the following changes to the existing wells occurred in 2019:

- Six wells (MW2008-3, MW2008-4, MW2008-5, MW2015-04, MW2015-05, and MW2015-07) were decommissioned in 2019. Replacement wells (MW2008-7R and MW-E1R) were drilled at two of the six decommissioned well locations.
- Two new wells (MW2019-01 and MW2019-02) were installed at the site.

The above changes to the well suite reduced the sample scope to twelve locations during the October 2019 sampling event.

During the 2019 event, the twelve monitoring wells were sampled for concentrations of gasoline range organics (GRO); diesel range organics (DRO); residual range organics (RRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); polycyclic aromatic hydrocarbons (PAH); and the dissolved metals zinc and lead. Additionally, the groundwater was also sampled for concentrations of the monitored natural attenuation (MNA) parameters iron, manganese, nitrate/nitrite and sulfate to assess the natural attenuation potential of the petroleum contaminants in the groundwater.

The analytical results of the groundwater samples from the 2019 monitoring activity reported that three of the site wells (MW-E1R, MW2019-01 and MW2019-02) contained contaminant concentrations exceeding ADEC cleanup levels. The sample results from the remaining wells were reported either below cleanup levels or the respective laboratory detection limits.

2020 PROJECT OBJECTIVE AND SCOPE

The project objective is to ensure continued environmental compliance for the site through the performance of a groundwater sampling from the wells in the fall of 2020. CES-Rescon will conduct the sampling effort in accordance with the methods and procedures detailed in the ADEC Field Sampling Guidance and the 2018 WP. The one exception is that, similar to the 2019 event, the monitoring scope has been reduced from 16 to 12 of the site wells. A detail of the wells to be sampled during the 2020 event is provided below in Table 2. Additionally, a copy of the site plan figure from the 2019 Groundwater Monitoring Report (Figure 4-1) showing the wells to be sampled in 2020 is included with this work plan addendum as Figure 1.

TABLE-2: 2020 Monitoring Wells to be Sampled

Well ID	Monument Type	Latitude	Longitude	Past Productivity
MW2008-6	Flush	-165.403	64.54467	Good Recovery / No Drawdown
MW2008-7R	Flush	-165.400	64.54440	Good Recovery / Minimal Drawdown
MW2015-01	Flush	-165.399	64.54571	Good Recovery / Minimal Drawdown
MW2015-02	Flush	-165.401	64.54593	Fair Recovery / Minimal Drawdown
MW2015-03	Flush	-165.403	64.54634	Poor Recovery / Greater than 1 ft. Drawdown
MW2015-06	Flush	-165.401	64.54779	Poor Recovery / Approx. 1/2 ft. Drawdown
MW2015-08	Flush	-165.400	64.54662	Good Recovery / Minimal Drawdown
MW2015-09	Flush	-165.398	64.54757	Poor Recovery / Approx. 1/2 ft. Drawdown
MW2015-10	Flush	-165.400	64.54729	Poor Recovery / Approx. 1/4 ft. Drawdown
MW2019-01	Flush	-165.399	65.54852	Fair Recovery / Minimal Drawdown
MW2019-02	Flush	-165.400	64.548	Fair Recovery / Minimal Drawdown
MW-E1R	Flush	-165.400	64.5471	Fair Recovery / Minimal Drawdown

PROJECT ACTIVITIES

Upon approval of this work plan addendum, CES-Rescon will mobilize the field team along with the field sampling equipment, sample coolers and instrumentation to the site from Anchorage, AK. The field team will wear face masks during transit to the site and while indoors and adhere to all DoD and State and Local health mandates to minimize the potential for spread of COVID-19. Copies of the Right-of-Entry permits obtained by the USACE are appended to the 2018 WP in Attachment 1.

Groundwater Depth Measurements

Prior to the collection of groundwater samples, the project team will first measure the depth to water in each of the 12 wells within a 2 hour period. The 2 hour measurement period is intended to capture a snapshot of the groundwater elevations throughout the site for determining accurate gradient conditions. This approach mitigates the impacts of fluctuations in the water table from potential tidal influences or daily changes that could potentially result in inaccurate gradient determinations.

The project team will locate, open and inspect the condition of the well casings and the protective monuments at each location. Any damage observed will be documented in the field notes and photographed. The field team will measure the total depth, groundwater depth and free product thickness (if any) in the wells using an oil-water interface probe. Depth measurements will be recorded from the north side of the well casing unless a specific measurement mark is evident at the top of the casing. The depth measurements will be recorded to the nearest hundredth of a foot in the field notes.

The groundwater elevations will be calculated by subtracting the groundwater depth measurements from the top of casing elevations of each respective well. CES-Rescon will utilize the calculated groundwater elevations to update the groundwater gradient contours at the site.

Groundwater Stabilization

CES-Rescon will purge the monitoring wells in accordance with low-flow techniques outlined in the U.S. Environmental Protection Agency (EPA) guidance (EPA, 2010) and the ADEC Field Sampling Guidance (ADEC, 2019). The wells will be purged using a stainless steel submersible pump and dedicated tubing. CES-Rescon will deploy the pump to a depth within one foot of the top of the groundwater. The groundwater will be pumped through a flow-through cell connected to a YSI 556 meter (YSI) for measuring the water quality parameters. In accordance with low-flow sampling requirements, water quality parameters are considered stable when three successive readings, collected 3-5 minutes apart, are within:

- ± 0.1 for pH,
- ± 3% for conductivity,
- ± 10 mV for redox potential,
- ± 10% for dissolved oxygen (DO), and
- Below 5 nephelometric turbidity units (NTU) or ± 10% for turbidity.

Visual observations (color, odor, sheening, etc.) will also be recorded in the field notes and on sample logs. All groundwater quality measurements and field observations will be recorded on groundwater monitoring data sheets. Turbidity measurements, in NTUs, will be measured with a portable Hach Turbidimeter.

The field team will monitor the depth to water during purging to avoid water level drawdown. The minimum drawdown requirement is less than 0.3 feet during purging. As shown above in Table 2, several of the site wells in the past have exhibited fair to poor recharge rates with drawdowns greater than the 0.3 feet standard. In order to mitigate this issue and minimize drawdown at the wells, CES-Rescon will set purging rates below 100 mL/min and utilize ¼ inch inner diameter tubing to minimize the tubing void. However, in the event that drawdown cannot be achieved, three well volumes will be purged prior to sampling. Purging will continue until water quality parameters stabilize for three successive well volumes. In the event that a low yield well is purged dry before stabilization is achieved, the well will be allowed to recover until approximately 80% of the initial well volume has recharged and then groundwater samples will be collected.

Groundwater Sampling

Following stabilization of the water quality parameters, CES-Rescon will collect the groundwater samples from the 12 site monitoring wells (starting with the least contaminated wells) for the following analyses:

- GRO using Alaska Method AK101,
- DRO/RRO using Alaska Methods AK102/AK103,
- BTEX using EPA Method SW8260D,

- PAHs using EPA Method SW8270D SIM,
- Iron, lead, manganese and zinc using EPA Method 6020, and
- Sulfate using EPA Method SW9056A

Samples submitted for GRO and BTEX will be collected into laboratory-provided, 40-milliliter (mL) VOA vials preserved with hydrochloric acid (HCL). The vials will be filled completely to prevent volatilization. The containers will be capped, turned over and tapped to verify no air bubbles are present. Samples submitted for DRO/RRO will be collected into laboratory-provided 250-mL containers preserved with HCL preservative. Samples submitted for PAH and sulfate analyses will be collected into separate laboratory-provided 250-mL containers with no preservative. Samples collected for metals will be collected into laboratory-provided 125-ml containers with nitric acid preservative. Field personnel will collect the analytical samples in order of the most volatile to least volatile analytes to ensure a minimal loss of volatile concentrations. The samples will be appropriately labeled, and immediately placed into a cooler with sufficient gel ice to maintain sample temperatures of 0 degrees Celsius (°C) to 6 °C during transport to the project laboratory. Quality control samples will consist of a trip blank sample accompanying all volatile analysis samples, temperature blanks in each sample cooler, field duplicates collected at a frequency of 10% of total number of samples per day and an equipment blank sample collected at the end of the sampling activity.

Sample Management

CES-Rescon will label the sample containers in accordance with the nomenclature structure detailed in Section 3 of the 2018 WP, which is shown below.

- Year: 20 (for 2020)
- Site: NSTE (for Nome Tank Site 'E')
- Well Identification Number (i.e. MW2008-6)

Consistent with the 2018 WP, duplicate samples will be named by adding a '9' to the monitoring well number (e.g. MW2008-69 will be a duplicate of MW2008-6). Equipment blanks and trip blanks will be labeled sequentially as EB-# and TB-# respectively.

The groundwater samples will be transported to SGS North America (SGS) in Anchorage under proper chain of custody procedures. SGS is a certified laboratory with the ADEC Laboratory Certification Program and Department of Defense (DoD) Environmental Laboratory Accreditation Program. A copy of the current accreditations for SGS is provided in Attachment 3.

Equipment Management

CES-Rescon will calibrate all field instruments at the beginning of each workday. Operation and maintenance will be performed in accordance with the instrument manufacturer's specifications. The manufacturers' calibration instructions will accompany the field instruments so that on-site personnel can perform the proper calibration procedures. The dates, times and results of calibrations and on-site repairs to field instruments will be recorded in the field notebook. If at any time, it is observed that the instrument has drifted out of calibration, as evidenced by groundwater quality parameters measuring zero or a negative number for dissolved oxygen, pH, specific conductance, or turbidity (negative value only), the field team will recalibrate or replace the equipment.

Investigation Derived Waste

CES-Rescon anticipates that the Investigation Derived Wastes (IDW) generated during the project will include purge and decontamination water and miscellaneous consumables, such as personal protective equipment, disposable tubing, etc. Solid waste will be inspected for visible signs of contamination, sealed inside construction-grade garbage bags, and disposed of in a local municipal solid waste receptacle. Decontamination water or monitoring well purge water will be processed through a granular, activated carbon (GAC) filter prior to being discharged to a vegetated area on-site at least 100 feet away from nearby surface water bodies. The field team will capture the effluent in 5-gallon buckets to inspect the water for evidence of hydrocarbon sheen formation prior to discharging to the ground. In the event that sheen formation or other evidence of contaminant breakthrough is observed, the water will be transferred to a steel open-topped, DOT-approved 55-gallon drum for disposal offsite. The spent carbon from the GAC filter will be demobilized from the site and appropriately disposed of with other project impacted waste materials.

SCHEDULE AND REPORTING

In order to conduct the monitoring effort during the optimal groundwater conditions at the site, CES-Rescon intends to conduct the groundwater monitoring activity in late October/early November 2020. Upon completion of the field activities CES-Rescon will prepare a report for USACE and ADEC review and approval. The report will provide a thorough understanding of the activities conducted at the site and document any deviations to the work scope and the effects of the deviations, if any, to the overall project objectives. The report will also contain tables summarizing the groundwater sampling results, detailed figures showing sample locations and results, analysis of the data, a description of data gaps, if any, and the potential environmental issues that remain within the study area. Supporting documents in the appendices will include a photograph log, field notes (including monitoring well data sheets), laboratory reports with a completed ADEC Laboratory Data Review Checklist and Data Quality Assessment and waste disposal records.

All project reports will be submitted in electronic deliverables to USACE and ADEC in accordance with the MED dated April 2017.

Respectfully Submitted:

____

Zack Kirk
Project Manager
CES-Rescon LLC

Cc: Mike Macmillan – USACE – Project Manager
Tim Clapp – USACE - CO

ATTACHMENTS:

Attachment 1	Final Groundwater Sampling Work Plan 2018, Nome Tank Site 'E' POL Contamination, Nome Area Defense Region, Nome Alaska, July 2018.
Attachment 2	ADEC Qualified Environmental Professional Resumes.
Attachment 3	SGS North America – Anchorage – Current Accreditations

FIGURES:

Figure 1	2019 Final Groundwater Sampling Report (Figure 4-1)

REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2006. *Environmental Laboratory Data and Quality Assurance Requirements*. Technical Memorandum 06-002.

ADEC, 2013. *Monitoring Well Guidance*. September.

ADEC, 2017. *Site Characterization Work Plan and Reporting Guidance*. March.

ADEC, 2018. Alaska Administrative Code (18 AAC 75) – *Oil and hazardous Substances Pollution Control*. October.

ADEC, 2019. *Field Sampling Guidance*. Division of Spill Prevention and Response. Contaminated Sites Program. August.

USACE 2018. Final Groundwater Sampling Work Plan 2018, Nome Tank Site 'E' Formerly Used Defense Site. July.

USACE 2019. Final Groundwater Sampling Report 2018, Nome Tank Site 'E' POL Contamination, Nome Area Defense Region, Nome, Alaska. May.

United States Environmental Protection Agency (USEPA), 2010. *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells*. January, 2010.

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ATTACHMENT 1
FINAL GROUNDWATER SAMPLING WORK PLAN 2018
NOME TANK SITE 'E' POL CONTAMINATION
NOME AREA DEFENSE REGION
NOME, ALASKA
JULY 2018.

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Final Groundwater Sampling Work Plan 2018

Nome Tank Site 'E' POL Contamination

Nome Area Defense Region

Nome, Alaska

Formerly Used Defense Site F10AK005211

Contract No. W911KB-17-D-0020

Task Order No. W911KB18F0023

July 2018

Prepared for:

U.S. Army Corps of Engineers

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Final Groundwater Sampling Work Plan 2018

Nome Tank Site 'E' POL Contamination

Nome Area Defense Region

Nome, Alaska

Formerly Used Defense Site F10AK005211

Contract No. W911KB-17-D-0020

Task Order No. W911KB18F0023

July 2018

Prepared for:

U.S. Army Corps of Engineers

Prepared by:

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

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ACRONYMS AND ABBREVIATIONS

°	degrees
µs/cm	microsiemens per centimeter
%	percent
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AED	automated external defibrillator
aMLW	above mean lower low water level
BES LLC	Bethel Environmental Solutions, LLC
Brice	Brice Engineering, LLC
CFR	Code of Federal Regulations
CoC	chain-of-custody
CPR	cardiopulmonary resuscitation
CQM	Contractor Quality Management
DCA	1,2-dichloroethane
DoD	U.S. Department of Defense
DRO	diesel-range organics
EDB	ethylene dibromide
ELAP	Environmental Laboratory Accreditation Program
FUDS	Formerly Used Defense Site
GRO	gasoline-range organics
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDW	investigation-derived waste
IT	International Technology Corporation
JMM	James M. Montgomery, Consulting Engineers
LIF	laser-induced fluorescence
MED	Manual for Electronic Deliverables
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL/min	milliliters per minute
MS/MSD	matrix spike/matrix spike duplicate
mV	millivolt
NTU	nephelometric units
PAH	polycyclic aromatic hydrocarbons
PMP	Project Management Professional
RI	remedial investigation
ROST	rapid optical screening tool
RRO	residual-range organics
SOP	standard operating procedure
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

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1.0 INTRODUCTION

This Work Plan describes the project approach and methods that will be used while conducting groundwater sampling at the Nome Tank Site 'E' Formerly Used Defense Site (FUDS) in Nome, Alaska (Figure 1-1) during the 2018 field season. Work will be performed for the United States Army Corps of Engineers (USACE), Alaska District, under Contract W911KB-17-D-0020, Task Order No. W911KB18F0023.

This Work Plan was prepared by Brice Engineering, LLC (Brice) in accordance with *18 Alaska Administrative Code (AAC) 75* (Alaska Department of Environmental Conservation [ADEC] 2017a), the ADEC *Field Sampling Guidance* (ADEC 2017b), and the *Manual for Electronic Deliverables* (MED) (USACE 2017b).

1.1 Work Plan Organization

The following sections are included:

- Section 1.0 (Introduction) – Provides introductory information, the Work Plan organization, and key project personnel.
- Section 2.0 (Nome Tank Site 'E' POL Contamination) – Provides a site description and summarizes the site history and previous investigations.
- Section 3.0 (2018 Groundwater Monitoring Activities) – Describes the planned 2018 groundwater monitoring activities and sampling procedures, and regulatory criteria for the analytical results comparison.
- Section 4.0 (Documentation and Reporting) – Details the elements that will be included in the Report.
- Section 5.0 (References) – Provides relevant references.
- The Work Plan is supported by the following appendices:
  - Appendix A Right-of-Entry Permits
  - Appendix B Field Forms
  - Appendix C Standard Operating Procedures
  - Appendix D Project Action Limits and Laboratory Limits
  - Appendix E Laboratory Certifications
  - Appendix F Response to Comments

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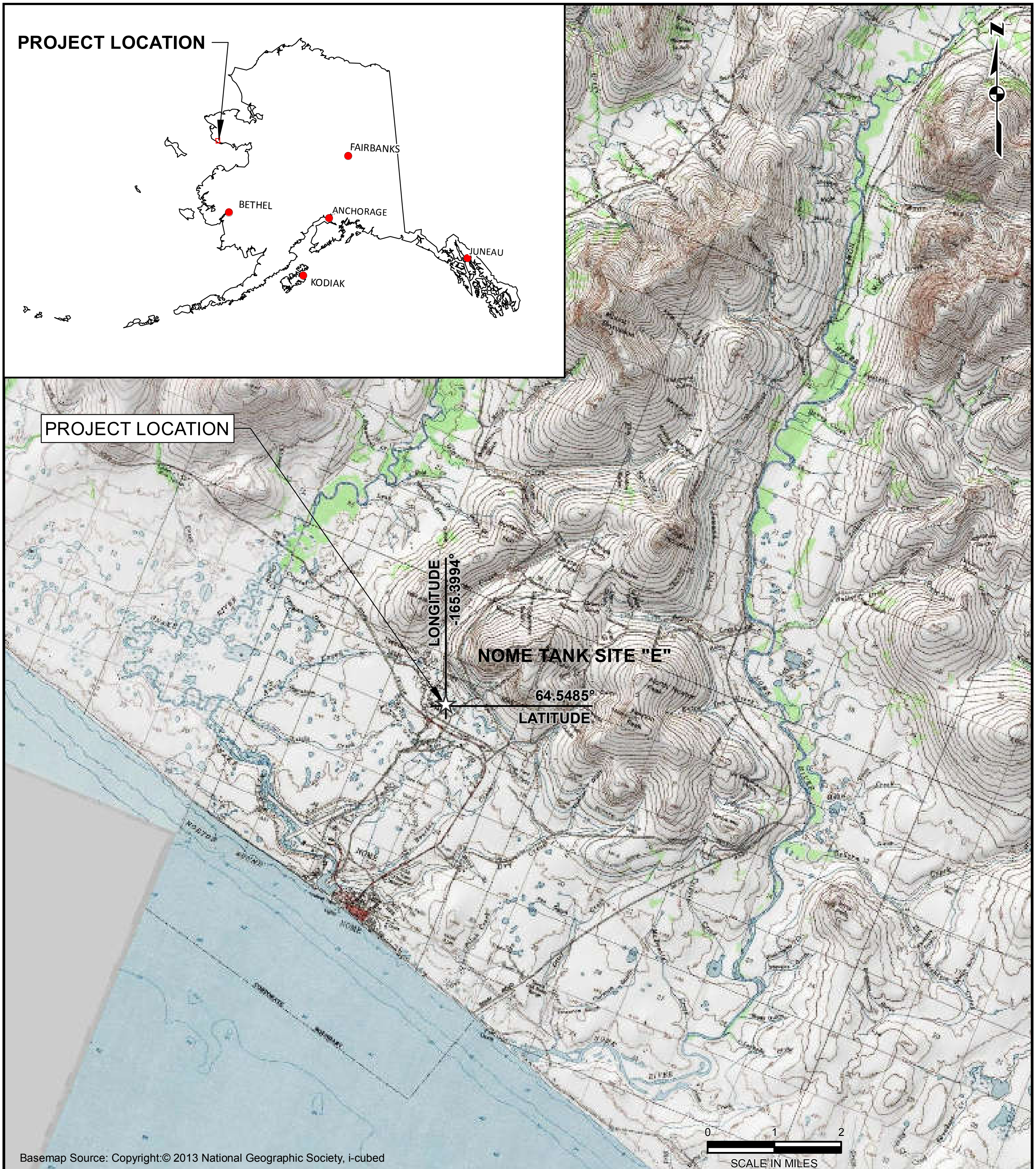

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

GROUNDWATER SAMPLING WORK PLAN 2018
NOME TANK SITE 'E' POL CONTAMINATION
NOME, ALASKA

LOCATION AND VICINITY

DATE: 4/23/2018
CONTRACT No.: W911KB-17-D-0020
TASK ORDER No.: W911KB18F0023
DRAWN: AFS

FIGURE: **1-1**

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1.2 Key Personnel

Table 1-1 presents the key personnel for the project, their qualifications, and their responsibilities on the project.

TABLE 1-1: KEY PERSONNEL

<table>
<tr><th>NAME/ TITLE/ CONTACT INFO</th><th colspan="3">RESPONSIBILITIES</th></tr>
<tr><td>Beth Astley
USACE Project Manager
(907) 753-5782
Beth.N.Astley@usace.army.mil</td><td colspan="3">Maintaining oversight for the overall project. Responsible for the technical, quality assurance, and decision-making matters concerning project execution. Evaluates field changes and recommended solutions. Coordinates communications with regulators and stakeholders.</td></tr>
<tr><td>Will Mangano
USACE Environmental Engineer
(907) 753-5689
William.F.Mangano@usace.army.mil</td><td colspan="3">Ensuring the technical aspects of the project are carried out as intended and as presented in the approved Work Plan.</td></tr>
<tr><td>Jake Sweet
USACE Project Chemist
(907) 753-2694
Jacob.M.Sweet@usace.army.mil</td><td colspan="3">Ensuring the technical aspects of analytical chemistry are carried out as intended and as presented in the approved Work Plan.</td></tr>
<tr><td>Dennis Shepard
ADEC Regulator
(907) 451-2180
dennis.shepard@alaska.gov</td><td colspan="3">Providing regulatory project oversight.</td></tr>
<tr><th>NAME/ TITLE/ CONTACT INFO</th><th>RESPONSIBILITIES</th><th>EDUCATION/EXPERIENCE</th><th>SPECIALIZED TRAINING/CERTIFICATIONS</th></tr>
<tr><td>Jennifer Anderson
Brice Project Manager
(907) 275-2895
janderson@briceenvironmental.com</td><td>Providing direction to the Brice project team to ensure project objectives are achieved, the project budget is tracked, and the project is on schedule.</td><td>Jennifer Anderson has over 17 years of experience working on State and Federal environmental projects across Alaska. She holds a BS in Civil Engineering (Environmental Engineering Emphasis) from the University of Missouri-Rolla and two PEs in Alaska (Civil and Environmental).</td><td>• PMP
• 40-Hour HAZWOPER
• 8-Hour refresher per 29 CFR 1910.120(e)
• First-aid certification
• Adult CPR/ AED certification
• ADEC Qualified Environmental Professional</td></tr>
</table>

TABLE 1-1: KEY PERSONNEL (CONTINUED)

NAME/ TITLE/ CONTACT INFO	RESPONSIBILITIES	EDUCATION/EXPERIENCE	SPECIALIZED TRAINING/CERTIFICATIONS
Nicole Ward Brice Field Manager/ Site Safety and Health Officer (907) 275-2913 nward@briceenvironmental.com	Implementing, overseeing, and coordinating project activities and ensuring project objectives are met. Supporting Project Manager as needed. Implementing, overseeing, and coordinating safety for this project.	Nicole Ward has 7 years of experience working on contaminated sites projects throughout Alaska, including U.S. Department of Defense (DoD) RIs and feasibility studies. Her experience includes field sample collection for a variety of media, subcontractor oversight, and Work Plan and report preparation. She holds a MS in Environmental Science from Alaska Pacific University.	• 40–Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • 8-Hour HAZWOPER Supervisor • 30-Hour OSHA Construction • Asbestos Hazard Emergency Response Act Building Inspector • CQM certification • Dakota Technologies Ultraviolet Optical Screening Tool Training Course • Hydrocarbon Risk Calculator Training Couse • Alaska Certified Erosion and Sediment Control Lead • First-aid certification • Adult CPR/AED certification • All-terrain Vehicle Rider Course • ADEC-Qualified Environmental Professional
Alison Sacks Brice Project Engineer (907) 277-7290 asacks@briceenvironmental.com	Conducting field work and supporting the Field Manager and Project Manager as needed.	Alison Sacks has over 3 years of experience working as a geoscientist and over a year of experience working on DoD contaminated sites projects. She holds a BS in Civil Engineering, a BA in Geology, and a MS in Geoscience from Pennsylvania State University.	• 40-Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • 30-Hour OSHA Construction • CQM certification • Remote first-aid certification • Adult CPR/AED certification • EIT • ADEC-Qualified Sampler
Kelly Carson Brice Project Chemist (907) 277-7297 kcarson@briceenvironmental.com	Coordinating with the analytical laboratory, reviewing analytical data, and ensuring that the data quality objectives are achieved.	Kelly Carson has over 15 years of technical and professional experience executing RI projects throughout Alaska, with specific experience managing laboratory subcontracts and reviewing and validating analytical data. She holds a MS in Environmental Quality Science from the University of Alaska Anchorage and a BS in Environmental Studies from Utah State University.	• 40-Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • First-aid certification • Adult CPR/AED certification • ADEC-Qualified Environmental Professional

TABLE 1-1: KEY PERSONNEL (CONTINUED)

NAME/ TITLE/ CONTACT INFO	RESPONSIBILITIES	EDUCATION/EXPERIENCE	• SPECIALIZED TRAINING/CERTIFICATIONS
Dan Clark Brice Corporate Safety Officer (907) 978-3033 danc@bilista.net	Developing, implementing, and overseeing all safety and health-related aspects of the project.	Dan Clark is a Registered Safety Manager with over 28 years of professional experience. He has served Brice since 1993 and held the position of Corporate Safety Officer since 2006, overseeing safety for more than $100M in environmental and construction projects. He holds a BA in Business Economics from the University of California Santa Barbara.	• 40-Hour HAZWOPER • 8-Hour refresher per 29 CFR 1910.120(e) • First-aid certification • Adult CPR/AED certification • Blood borne Pathogens training • 30-Hour OSHA Construction • ADEC-Qualified Environmental Professional

Notes:

For definitions, see the Acronyms and Abbreviations sections.

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2.0 NOME TANK SITE ‘E’ POL CONTAMINATION

The Nome Tank Site ‘E’ site is located approximately four miles north of downtown Nome, and less than one half mile northeast of the Nome-Beltz High School off Glacier Creek Road (Figure 1-1). The former tank footprint is located (in decimal degrees) at 64.548503° North Latitude and 165.399418° West Longitude (USACE 2018).

Nome Tank Site ‘E’ was a bulk fuel storage site for the Army Air Corps during World War II serving the now abandoned Satellite Air Field. The site historically contained a 24,000-barrel (1,000,000-gallon) underground fuel storage tank covered with 5 to 15 feet of sand and gravel. The tank was demolished and removed in 2015 as part of a soil removal action by Bethel Environmental Solutions (BES LLC). Part of the area was reportedly dredged for gold in the past and soil at the site consists of tailings from prior mining operations. The site and surrounding lands are free of topsoil and have sparse vegetation in some areas, along with several small ponds presumably resulting from historic mining activities. The site is currently owned by the Bering Straits Native Corporation, which purchased the land from Nova Gold/Alaska Gold in November 2012 (USACE 2018).

Nome Tank Site ‘E’ is included in the Alaska Department of Environmental Conservation’s (ADEC) Contaminated Sites Program Database under the name “Nome Tank Site ‘E’ / DERP / Site 6”, with Hazard Identification (ID) #1154 and File ID #400.38.001L. The ADEC’s Contaminated Sites Program Database is available through the State of Alaska’s Division of Spill Prevention and Response web page [www.dec.alaska.gov/spar] (USACE 2018).

2.1 Site Description

The following subsections describe the geology and soils, hydrology/groundwater, and climate near Nome, Alaska. The following information was largely summarized from the *2017 Groundwater Sampling Report Nome Tank Site ‘E’ Formerly Used Defense Site F10AK005211, Nome, Alaska* (USACE 2018).

2.1.1 Geology

The Nome area is located on the south coastal plain of the Seward Peninsula, adjacent to Norton Sound and the Bering Sea. The coastal plain extends approximately 3.5 miles inland to the base of a series of hills and ridges that rise to 1,800 feet above sea level. The ridges are oriented predominantly north-south and are separated by south-flowing primary drainages. The Nome area was subjected to alpine glaciations during the Pleistocene Epoch (USACE 2018).

Paleozoic and tertiary metamorphic and igneous rocks in the Nome area are folded into broad anticlines and synclines. Several faults occur in the area, including a major northeast trending fault in the Anvil Creek Valley. Lower elevation areas are commonly mantled with colluvium, alluvium, glacial deposits, coastal plain sediments, and placer mine spoils. Nome lies in a region of discontinuous permafrost. Except for mined areas and alluvial sand and gravels associated with streams and rivers, the coastal plain is underlain with continuous or near continuous permafrost. The dominant soils within the area are poorly drained and shallow. The surface is commonly patterned with solifluction lobes on sloping areas, frost scars on low knolls, and polygons in some of the nearly level valleys bottoms. The vegetation is typically tundra dominated by sedges, mosses, lichens, and low shrubs (USACE 2018).

2.1.2 Hydrology and Groundwater

In September 2017, the overall groundwater flow direction was towards the southwest. Groundwater elevations measured during the September 2017 event are posted on Figure 2-1 (units are feet above mean lower low water level [aMLW]). Measured groundwater elevations ranged between 95 and 150 feet aMLW.

2.1.3 Climate

The climate over much of the Seward Peninsula is maritime when the Bering Sea is ice-free, roughly from May to October. The freezing of Kotzebue Sound (northeast of the Seward Peninsula) and Norton Sound (south and east of the Seward Peninsula) in November causes an abrupt change to the continental climate. During ice-free periods along the coast, cloudy skies prevail, fog occurs, daily temperatures are relatively uniform, and westerly winds predominate. January temperatures range from -3 to 11°F; July temperatures are typically 44 to 65°F. Average annual precipitation is 18 inches, including 56 inches of snowfall. The coastal areas experience temperatures cooler in summer and warmer in winter than interior areas. Precipitation and snow depths are strongly influenced by wind patterns. The sub-arctic climate of the Bering Straits Region varies between cold, predominantly dark winter days and mild, long summer days warmed by nearly 24 hours of sunlight (USACE 2018).

2.2 Previous Investigations

Several site investigations and removal actions have previously been conducted at the site. The following information was largely summarized from the *2017 Groundwater Sampling Report Nome Tank Site 'E' Formerly Used Defense Site F10AK005211, Nome, Alaska* (USACE 2018). Where a different reference was used, that reference is specified.

Initial and Remedial Investigations (1985-1989): The USACE originally investigated the Nome Area Defense Region from 1985 through 1988. Multiple areas of contamination and probable contamination were identified based on 1989 remedial investigation work by James M. Montgomery, Consulting Engineers (JMM) under contract to USACE. JMM conducted investigations at the following sites: Airport 'U', DOT 'J', Field 'R', Prison 'A', Tank Site 'E', and the Nome Spit.

Removal Actions and Soil Investigation (1994-1996): In 1993, the USACE contracted the construction services of International Technology Corporation (IT) to conduct a removal action at various FUDS properties throughout the Seward Peninsula including the Nome Area Defense Region. The major removal action work at the Nome Area Defense Region occurred during the 1994, 1995, and 1996 construction seasons. IT drilled 11 soil borings; installed three groundwater monitoring wells (MW-1, MW-2, and MW-3); and dug 25 test pits during the investigation at Nome Tank Site 'E'. Diesel-range contamination was found in soil up to 23,400 milligrams per kilogram (mg/kg).

ROST Investigation and Monitoring Well Installation (2007): In June 2007, USACE, Alaska District personnel conducted an environmental investigation at Nome Tank Site 'E'. The investigation used the Rapid Optical Screening Tool/Laser-Induced Fluorescence (ROST/LIF) system to investigate the extent of petroleum contamination in soil at the site. A total of 60 ROST/LIF probes were advanced during the field effort to depths ranging from 7.4 to 55.7 feet below ground surface. The ROST investigation determined that a contaminated soil plume extended approximately 1,200 feet south-southwest from Tank Site 'E', covering approximately 12 to 15 acres. Contamination extended down to bedrock at about 25 feet beneath the base of the tank. South of the tank, an apparent smear zone was observed, beneath 28 to 43 feet of clean overburden, extending down or close to bedrock. The 2007 investigation also included the installation of three monitoring wells (MW-E1, MW-E2, and MW-E3). Existing wells MW-1 and MW-3 were destroyed and MW-2 had a broken casing that made sampling difficult. Groundwater was sampled and analyzed for diesel-range organics (DRO), residual-range organics (RRO), polycyclic aromatic hydrocarbons (PAHs) and BTEX at two of the three new monitoring wells, as well as at existing monitoring well MW-2. The third new monitoring well, MW-E3, could not be sampled due to extremely slow recharge rates. DRO concentrations were above the ADEC groundwater criterion in both MW-2 and MW-E1. RRO was found above the ADEC groundwater criterion in MW-E1. BTEX and PAH compounds were detected in most wells; however, concentrations did not exceed ADEC groundwater criteria. It was determined that groundwater at Tank Site 'E' was impacted by fuel contamination and that groundwater flow direction was to the southwest based on water levels recorded during the investigation.

Additional Monitoring Well Installation and Sampling (2008): Seven new monitoring wells were installed and sampled at Nome Tank Site 'E' by Fairbanks Environmental Services (FES) in August 2008 (MW2008-1 through MW2008-7). In addition, groundwater samples were collected from four existing wells (MW-2, MW-E1, MW-E2, and MW-E3). The groundwater investigation was conducted to further define the boundaries of the groundwater contaminant plume, to continue monitoring groundwater contaminant concentrations, and to evaluate natural attenuation. Groundwater samples were submitted for DRO, RRO, BTEX, and PAH analyses. DRO was detected at concentrations above the ADEC groundwater criterion in MW2008-1, MW2008-2, MW-2, MW-E1, and MW-E3. RRO was detected at concentrations above the ADEC groundwater criterion in MW2008-1 and MW-E1.

Tank Demolition, Contaminated Soil Removal, and Landfarming (2015-2019): In 2015, Bethel Environmental Solutions LLC demolished and disposed of the underground storage tank and excavated fuel-impacted soils within the tank footprint. The excavation progressed approximately 14 feet below the former tank foundation before groundwater was encountered and the excavation halted. Approximately 14,000 tons of contaminated soil were removed and the groundwater monitoring wells inside the excavation footprint were removed as part of the effort (USACE 2017c).

Excavation of an additional 16,000 tons of contaminated soil was completed by BES LLC in 2016. The excavation continued from the previous year's effort and extended down to the bedrock interface within the former tank footprint. Between the 2015 and 2016 excavation efforts, approximately 30,000 tons of fuel-impacted soil were removed. Landfarming activities associated with the remediation of the contaminated soil are scheduled to continue into 2019. Additional groundwater monitoring wells are also scheduled to be installed within the former tank footprint, once backfill activities are completed (USACE 2017c).

Ongoing Groundwater Sampling Program (2008-present): Groundwater has been sampled annually since 2008, except for 2012 when groundwater samples were not collected. Historical groundwater data are presented on Figure 2-2. FES installed and sampled monitoring wells in 2008, and continued sampling these wells annually through 2011. During these sampling events, DRO, RRO, benzene and 1-methylnaphthalene were detected in various wells at concentrations exceeding ADEC groundwater criteria. During the 2010 sampling event, approximately five feet of free product was measured in MW2008-1. A sampling event in the spring of 2011 found very low groundwater levels across the site, with few wells available to sample.

Five new groundwater wells (MW2012-1 through MW2012-5) were installed at the project site in July 2012 by USACE personnel to determine seasonal groundwater depths, measure water/free product levels, and evaluate remedial alternatives. Soil samples collected during this effort confirmed fuel-contaminated soils adjacent to the tank.

Free product was measured in one of the new wells in December 2012 and an effort was undertaken to characterize the reusability of the fuel. The fuel sample failed the U.S. Environmental Protection Agency (USEPA) Oil Burning Specification test for lead content in fuel. As a result, lead and lead scavengers 1,2-dibromoethane (EDB) and 1,2-dichloroethane (DCA), as well as gasoline-range organics (GRO) were included for analysis for subsequent sampling events.

Twelve of the sixteen groundwater wells were sampled in July 2013 by USACE personnel. MW2008-4 was not sampled or measured as the well was completely frozen. Monitoring wells MW2012-1 and MW2012-4 were not sampled due to the presence of free product. DRO concentrations were above the ADEC groundwater criterion in MW2008-1, MW2012-2, MW2012-3, MW2012-4, MW-E1, and MW-E3. RRO concentrations were detected above the ADEC groundwater criterion in MW-E1. The PAH compound 1-methylnaphthalene was detected in MW2008-1 exceeding ADEC groundwater criterion.

Groundwater samples were collected from ten monitoring wells in September 2014 by USACE personnel. DRO concentrations were above the ADEC groundwater criterion in MW2008-1, MW2012-2, and MW-E1. The 1-methylnaphthalene concentration in MW2008-1 was above the ADEC groundwater criterion. No other compounds were detected above ADEC groundwater criteria. Monitoring wells MW2012-1, MW2012-4, and MW2012-5 were not sampled due to measurable free product in the wells. MW-E3 had frost jacked and broken the casing, filling the well with bentonite, and was considered destroyed. MW2012-3 was not sampled due to slow recharge of extremely silty water.

In 2016, USACE personnel sampled fifteen of the sixteen wells onsite. These were analyzed for GRO, DRO, RRO, BTEX, lead, PAHs, and geochemical parameters (sulfate, manganese, and iron). Nitrate was not sampled due to an error in the sample container order. Monitoring well MW2015-04 was dry and could not be sampled. DRO, GRO, naphthalene, and 1-methylnaphthalene were the only compounds detected in exceedance of ADEC cleanup levels applicable at that time. DRO concentrations of 3900 µg/L and 1700 µg/L were detected in wells MW-E1 and MW2015-10, respectively. In the duplicate sample from MW-E1, two PAH constituents were detected in exceedance of cleanup levels: 1-methylnaphthalene was detected at a concentration of 160 µg/L, and naphthalene was detected at a concentration of 4.7 µg/L. Elevated concentrations of DRO were detected in the primary (1300 µg/L) and duplicate (1500 µg/L) samples at MW2015-01. Monitoring well MW2008-7 contained GRO at a concentration of 2300 µg/L. This well had never previously exceeded cleanup levels. Geochemical parameters (including sulfate, iron, and manganese) were also analyzed for a correlation to fuel concentrations. It was concluded that the iron and manganese concentrations did not correlate well with fuel concentrations, while sulfate concentrations were typically lower in wells with higher contaminant concentrations, and higher in wells with lower concentrations of fuel contaminants. This was interpreted as an indication of biodegradation taking place within the contaminant plume (USACE 2016).

In 2017, groundwater sampling was conducted by USACE personnel to evaluate groundwater contaminant trends and monitor the effectiveness of contaminated soil excavation efforts completed at the site in 2015 and 2016 by BES LLC. In May 2017, six wells (MW2008-3, MW2008-5, MW2008-6, MW2008-7, MW2015-01, and MW2015-09, selected as sentry wells), were sampled at a time expected to be coincident with the annual low groundwater level (USACE 2017a). There were no exceedances in samples collected during the May 2017 event (USACE 2018). Geochemical samples were collected and analyzed during the May 2017 event. The distributions of geochemical concentrations generally did not correlate well with fuel concentrations, and were not indicators of biodegradation trends (USACE 2018).

In September 2017, all fifteen viable wells remaining on site were sampled by USACE personnel. Monitoring well MW2015-04 was dry (dry during all sampling events since it was installed). Free product was not measured in any well. The DRO concentration detected in MW-E1 was 5100 µg/L, exceeding the ADEC groundwater criterion of 1500 µg/L. Two PAH constituents were detected in MW-E1 exceeding applicable groundwater criteria: 1-Methylnaphthalene was detected above the ADEC groundwater criterion of 11 µg/L at a concentration of 33 µg/L, and naphthalene was detected above the ADEC groundwater criterion of 1.7 µg/L at a concentration of 5.2 µg/L. No other results exceeded ADEC groundwater criteria (USACE 2018).

2.3 As-Built Analysis

Based on ADEC comments generated on the 2017 Groundwater Sampling Report (F10AK005211_02.04_0508_a), USACE conducted an updated historical document review and as-built analysis of fuel storage and distribution infrastructure at Nome Tank Site "E". Results of that effort identified multiple appurtenant piping runs and storage structures in the vicinity of the former tank footprint (Figure 2-3). The evaluation of information generated from that as-built analysis is beyond the scope of this groundwater sampling effort. However, USACE will coordinate future actions to address this new information with the ADEC, landowners, and other pertinent stakeholders as necessary.

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1 INCH

GROUNDWATER SAMPLING WORK PLAN 2018
NOME TANK SITE 'E'
NOME, ALASKA

NOME TANK SITE 'E'
WELL LOCATIONS AND SITE FEATURES

LEGEND:

Well Locations

- Well to be sampled in 2018: historical analytical result(s) exceeding ADEC Table C cleanup levels
- Well to be sampled in 2018: no historical analytical result(s) exceeding ADEC Table C cleanup levels
- Dry well

Site Features

- Former Tank 'E' Location
- Landfarming Cells
- Excavation and Landfarm Boundaries
- Mining Claim Boundaries
- BES Job Trailer
- Road

Abbreviations:

BES = Bethel Environmental Solutions LLC

Notes:

1. Depth to groundwater is posted in blue text next to wells. These were measured in September 2017. Elevations are in feet above mean lower low water level.
2. Aerial imagery and site features are taken from supplementary GIS materials provided with the final report on 2016 field activities:
U.S. Army Corps of Engineers, 2017, prepared by Bethel Environmental Solutions, LLC. *Final 2016 Report: Tank Demolition and Contaminated Soil Removal, Nome Tank Site 'E' Formerly Used Defense Site F10AK0052-11*. June. F10AK0052-11_07.08_0501_p
3. Map produced using ESRI ArcMap v. 10.5.
4. Decommissioned or destroyed wells are not shown on this figure.

U.S. SURVEY FEET
HORIZONTAL DATUM: WGS84
VERTICAL DATUM: NGVD '88

UNIVERSAL TRANSVERSE MERCATOR COORDINATE SYSTEM ZONE 3

200 100 0 200

SCALE IN FEET

CONTRACT No.:	TASK ORDER No.:	FIGURE:
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DATE: 4/27/2018	DRAWN: AFS	

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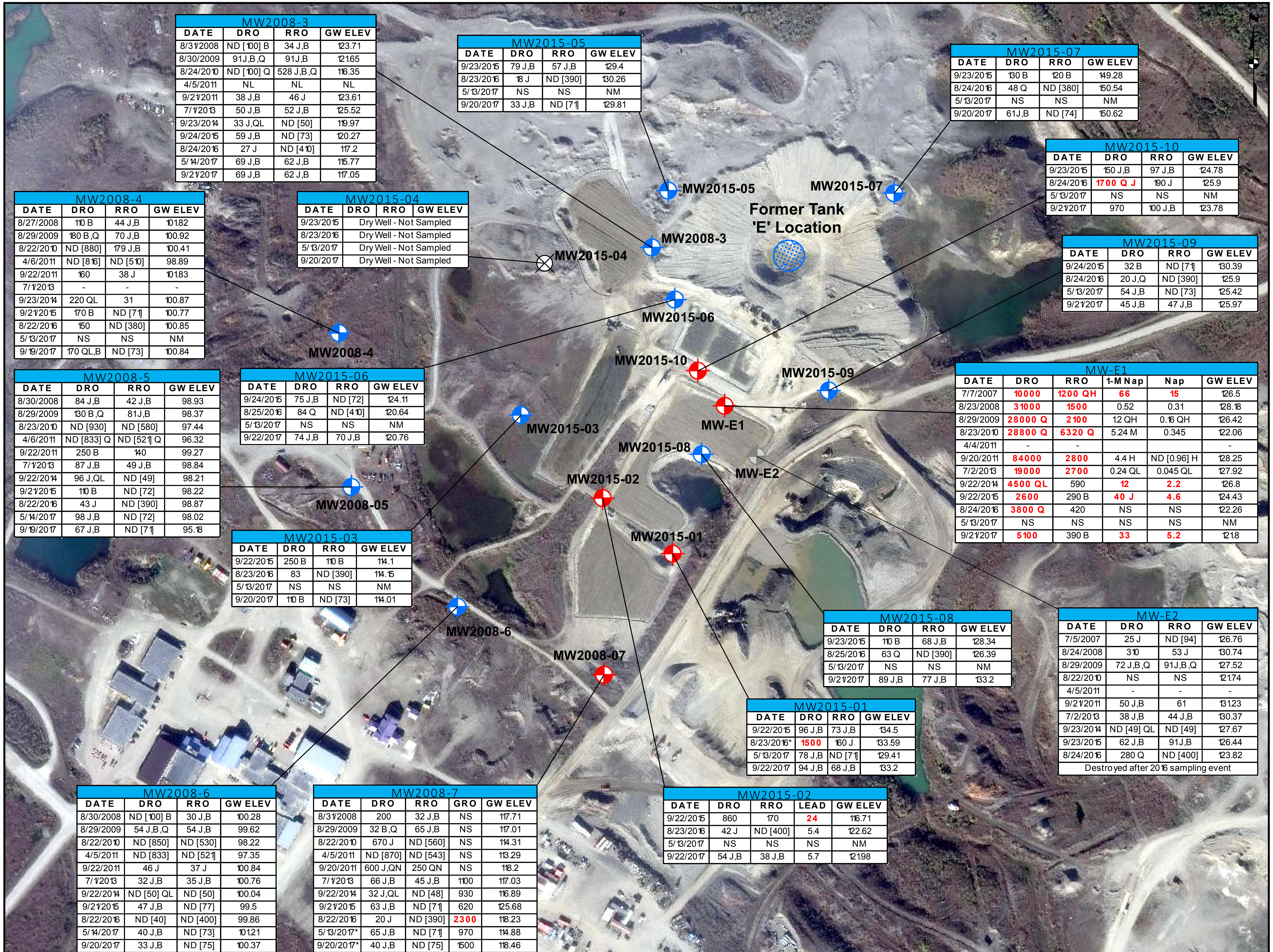

MW2008-3

DATE	DRO	RRO	GW ELEV
8/31/2008	ND [100] B	34 J,B	123.71
8/30/2009	91 J,B,Q	91 J,B	121.65
8/24/2010	ND [100] Q	528 J,B,Q	116.35
4/5/2011	NL	NL	NL
9/21/2011	38 J,B	46 J	123.61
7/1/2013	50 J,B	52 J,B	125.52
9/23/2014	33 J,QL	ND [50]	119.97
9/24/2015	59 J,B	ND [73]	120.27
8/24/2016	27 J	ND [410]	117.2
5/14/2017	69 J,B	62 J,B	115.77
9/21/2017	69 J,B	62 J,B	117.05

MW2015-05

DATE	DRO	RRO	GW ELEV
9/23/2015	79 J,B	57 J,B	129.4
8/23/2016	18 J	ND [390]	130.26
5/13/2017	NS	NS	NM
9/20/2017	33 J,B	ND [71]	129.81

MW2015-07

DATE	DRO	RRO	GW ELEV
9/23/2015	130 B	120 B	149.28
8/24/2016	48 Q	ND [380]	150.54
5/13/2017	NS	NS	NM
9/20/2017	61 J,B	ND [74]	150.62

MW2015-10

DATE	DRO	RRO	GW ELEV
9/23/2015	150 J,B	97 J,B	124.78
8/24/2016	1700 Q J	190 J	125.9
5/13/2017	NS	NS	NM
9/21/2017	970	100 J,B	123.78

MW2015-09

DATE	DRO	RRO	GW ELEV
9/24/2015	32 B	ND [71]	130.39
8/24/2016	20 J,Q	ND [390]	125.9
5/13/2017	54 J,B	ND [73]	125.42
9/21/2017	45 J,B	47 J,B	125.97

MW2008-4

DATE	DRO	RRO	GW ELEV
8/27/2008	110 B	44 J,B	101.82
8/29/2009	180 B,Q	70 J,B	100.92
8/22/2010	ND [880]	179 J,B	100.41
4/6/2011	ND [816]	ND [510]	98.89
9/22/2011	160	38 J	101.83
7/1/2013	-	-	-
9/23/2014	220 QL	31	100.87
9/21/2015	170 B	ND [71]	100.77
8/22/2016	150	ND [380]	100.85
5/13/2017	NS	NS	NM
9/19/2017	170 QL,B	ND [73]	100.84

MW2015-04

DATE	DRO	RRO	GW ELEV
9/23/2015	Dry Well - Not Sampled		
8/23/2016	Dry Well - Not Sampled		
5/13/2017	Dry Well - Not Sampled		
9/20/2017	Dry Well - Not Sampled		

MW2008-5

DATE	DRO	RRO	GW ELEV
8/30/2008	84 J,B	42 J,B	98.93
8/29/2009	130 B,Q	81 J,B	98.37
8/23/2010	ND [930]	ND [580]	97.44
4/6/2011	ND [833] Q	ND [521] Q	96.32
9/22/2011	250 B	140	99.27
7/1/2013	87 J,B	49 J,B	98.84
9/22/2014	96 J,QL	ND [49]	98.21
9/21/2015	110 B	ND [72]	98.22
8/22/2016	43 J	ND [390]	98.87
5/14/2017	98 J,B	ND [72]	98.02
9/19/2017	67 J,B	ND [71]	95.18

MW2015-06

DATE	DRO	RRO	GW ELEV
9/24/2015	75 J,B	ND [72]	124.11
8/25/2016	84 Q	ND [410]	120.64
5/13/2017	NS	NS	NM
9/22/2017	74 J,B	70 J,B	120.76

MW-E1

DATE	DRO	RRO	1-M Nap	Nap	GW ELEV
7/7/2007	10000	1200 QH	66	15	126.5
8/23/2008	31000	1500	0.52	0.31	128.18
8/29/2009	28000 Q	2100	1.2 QH	0.16 QH	126.42
8/23/2010	28800 Q	6320 Q	5.24 M	0.345	122.06
4/4/2011	-	-			-
9/20/2011	84000	2800	4.4 H	ND [0.96] H	128.25
7/2/2013	19000	2700	0.24 QL	0.045 QL	127.92
9/22/2014	4500 QL	590	12	2.2	126.8
9/22/2015	2600	290 B	40 J	4.6	124.43
8/24/2016	3800 Q	420	NS	NS	122.26
5/13/2017	NS	NS	NS	NS	NM
9/21/2017	5100	390 B	33	5.2	121.8

MW2015-03

DATE	DRO	RRO	GW ELEV
9/22/2015	250 B	110 B	114.1
8/23/2016	83	ND [390]	114.15
5/13/2017	NS	NS	NM
9/20/2017	110 B	ND [73]	114.01

MW2015-08

DATE	DRO	RRO	GW ELEV
9/23/2015	110 B	68 J,B	128.34
8/25/2016	63 Q	ND [390]	126.39
5/13/2017	NS	NS	NM
9/21/2017	89 J,B	77 J,B	133.2

MW-E2

DATE	DRO	RRO	GW ELEV
7/5/2007	25 J	ND [94]	126.76
8/24/2008	310	53 J	130.74
8/29/2009	72 J,B,Q	91 J,B,Q	127.52
8/22/2010	NS	NS	121.74
4/5/2011	-	-	-
9/21/2011	50 J,B	61	131.23
7/2/2013	38 J,B	44 J,B	130.37
9/23/2014	ND [49] QL	ND [49]	127.67
9/23/2015	62 J,B	91 J,B	126.44
8/24/2016	280 Q	ND [400]	123.82
Destroyed after 2016 sampling event			

MW2015-01

DATE	DRO	RRO	GW ELEV
9/22/2015	96 J,B	73 J,B	134.5
8/23/2016*	1500	160 J	133.59
5/13/2017	78 J,B	ND [71]	129.41
9/22/2017	94 J,B	68 J,B	133.2

MW2008-6

DATE	DRO	RRO	GW ELEV
8/30/2008	ND [100] B	30 J,B	100.28
8/29/2009	54 J,B,Q	54 J,B	99.62
8/22/2010	ND [850]	ND [530]	98.22
4/5/2011	ND [833]	ND [521]	97.35
9/22/2011	46 J	37 J	100.84
7/1/2013	32 J,B	35 J,B	100.76
9/22/2014	ND [50] QL	ND [50]	100.04
9/21/2015	47 J,B	ND [77]	99.5
8/22/2016	ND [40]	ND [400]	99.86
5/14/2017	40 J,B	ND [73]	101.21
9/20/2017	33 J,B	ND [75]	100.37

MW2008-7

DATE	DRO	RRO	GRO	GW ELEV
8/31/2008	200	32 J,B	NS	117.71
8/29/2009	32 B,Q	65 J,B	NS	117.01
8/22/2010	670 J	ND [560]	NS	114.31
4/5/2011	ND [870]	ND [543]	NS	113.29
9/20/2011	600 J,QN	250 QN	NS	118.2
7/1/2013	66 J,B	45 J,B	1100	117.03
9/22/2014	32 J,QL	ND [48]	930	116.89
9/21/2015	63 J,B	ND [71]	620	125.68
8/22/2016	20 J	ND [390]	2300	118.23
5/13/2017*	65 J,B	ND [71]	970	114.88
9/20/2017*	40 J,B	ND [75]	1500	118.46

MW2015-02

DATE	DRO	RRO	LEAD	GW ELEV
9/22/2015	860	170	24	116.71
8/23/2016	42 J	ND [400]	5.4	122.62
5/13/2017	NS	NS	NS	NM
9/22/2017	54 J,B	38 J,B	5.7	121.98

GROUNDWATER SAMPLING WORK PLAN 2018
NOME TANK SITE 'E'
NOME, ALASKA

NOME TANK SITE 'E' HISTORICAL GROUNDWATER DATA

LEGEND:

Well Locations

- Well with analytical result(s) exceeding ADEC Table C cleanup levels
- Well with no analytical result(s) exceeding ADEC Table C cleanup levels
- Well destroyed or decommissioned
- Dry well
- Former Tank 'E' Location

Abbreviations:

- = no water available for sampling
µg/L = micrograms per liter
ADEC = Alaska Department of Environmental Conservation
[LOD] = limit of detection
1-MNap = 1-Methylnaphthalene
Nap = Naphthalene
ND = not detected
NL = not located
NM = not measured
NS = not sampled
GRO = gasoline range organics
DRO = diesel range organics
RRO = residual range organics

Notes:

1. An asterisk (*) by a sample date indicates that a duplicate sample was collected.
2. Groundwater elevation is in feet above mean lower low water level.

Chemistry Notes:

1. Results shown as red text exceed ADEC Table C cleanup levels revised as of January 2018.
2. Groundwater results reported in µg/L.
3. For duplicate samples, the highest result is reported.
4. DRO and RRO are included by default in each table. Other analytes are included if there has been an exceedance.

Chemistry Qualifiers:

1. B - Analyte result is considered a high estimated value due to contamination present in the method blank or trip blank.
2. J - Estimated value; result is less than the LOQ.
3. M - Result is estimated with a high, low, or unknown (H, L, or N) bias due to matrix effects.
4. Q - Analyte result is considered an estimated value biased high, low, unknown (H,L, or N) due to a quality control failure.

Project Action Levels:

ANALYTE	ADEC GROUNDWATER CLEANUP LEVELS (µg/L)
GRO	2200
DRO	1500
RRO	1100
Lead	15
1-Methylnaphthalene	11
Naphthalene	1.7

References:

1. Aerial imagery and site features are taken from supplementary GIS materials provided with the final report on 2016 field activities:
U.S. Army Corps of Engineers, 2017, prepared by Bethel Environmental Solutions, LLC. *Final 2016 Report: Tank Demolition and Contaminated Soil Removal, Nome Tank Site 'E' Formerly Used Defense Site F10AK0052-11.* June. F10AK0052-11_07.08_0501_p

2. Map produced using ESRI ArcMap v. 10.5.

U.S. SURVEY FEET
HORIZONTAL DATUM: WGS84
VERTICAL DATUM: NGVD '88

UNIVERSAL TRANSVERSE MERCATOR COORDINATE SYSTEM ZONE 3

320 160 0 320
SCALE IN FEET

CONTRACT No.:	TASK ORDER No.:	FIGURE:
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DATE: 4/27/2018	DRAWN: AFS	

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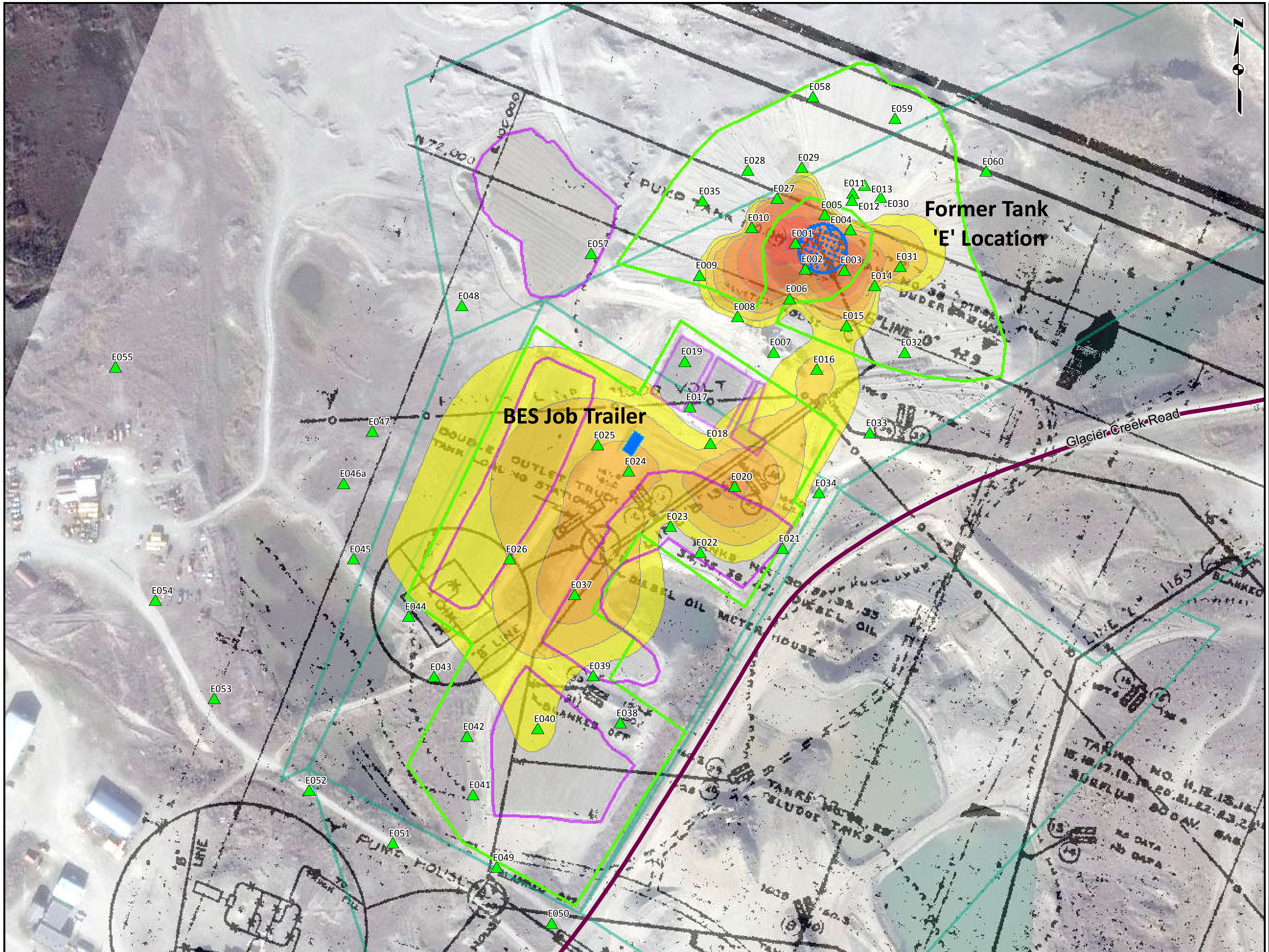

GROUNDWATER SAMPLING WORK PLAN 2018
NOME TANK SITE 'E'
NOME, ALASKA

NOME TANK SITE 'E' LIF PROBE LOCATIONS, EFFECTIVE CONTAMINANT MASS, AND SITE FEATURES

LEGEND:

Site Features

- LIF Probe Locations
- Former Tank 'E' Location
- Landfarming Cells
- Excavation and Landfarm Boundaries
- Claim Boundaries
- BES Job Trailer
- Road

Effective Contaminant Mass (%-ft.)

10 - 25 %-ft
25 - 50 %-ft
50 - 100 %-ft
100 - 200 %-ft
200 - 400 %-ft
400 - 800 %-ft
800 - 1600 %-ft

Abbreviations:

BES = Bethel Environmental Solutions LLC
ft. = feet
LIF = laser induced fluorescence

Notes:

1. Aerial imagery, site features, and 1947 Bulk Liquid Storage System schematic are taken from supplementary GIS materials provided with the final report on 2016 field activities:
U.S. Army Corps of Engineers, 2017, prepared by Bethel Environmental Solutions, LLC. *Final 2016 Report: Tank Demolition and Contaminated Soil Removal, Nome Tank Site 'E' Formerly Used Defense Site F10AK0052-11*. June. F10AK0052-11_07.08_0501_p

2. Map produced using ESRI ArcMap v. 10.5.

U.S. SURVEY FEET
HORIZONTAL DATUM: WGS84
VERTICAL DATUM: NGVD '88

UNIVERSAL TRANSVERSE MERCATOR COORDINATE SYSTEM ZONE 3

200 100 0 200
SCALE IN FEET

CONTRACT No.:	TASK ORDER No.:	FIGURE:
W911KB-17-D-0020	W911KB18F0023	2-3
DATE: 7/6/2018	DRAWN: AFS	

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3.0 2018 GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring activities are scheduled for mid-October 2018. Sixteen groundwater monitoring wells (MW2008-3, MW2008-4, MW2008-5, MW2008-6, MW2008-7, MW-E1, MW2015-01, MW2015-02, MW2015-03, MW2015-04, MW2015-05, MW2015-06, MW2015-07, MW2015-08, MW2015-09, and MW2015-10) will be gauged and sampled to evaluate contaminant concentration trends (Figure 2-2). Of these monitoring wells, seven have historically had low volume, poor recovery, and/or high turbidity (MW2008-3, MW2015-02, MW2015-05, MW2015-06, MW2015-08, MW2015-09, and MW2015-10). Prior to sampling, these wells will be evaluated for potential redevelopment. If a well contains silt build-up at the bottom of the screen, the water is turbid and does not clear after purging, or the well is not producing adequate yield, the well will be redeveloped in accordance with the ADEC *Monitoring Well Guidance* (ADEC 2013) to improve connection to the aquifer and increase yields. Table 3-1 lists the wells to be sampled and indicates the wells requiring redevelopment before sampling.

TABLE 3-1: LIST OF WELLS TO BE SAMPLED IN 2018

WELL NAME	MONUMENT TYPE	PAST PRODUCTIVITY/NOTES	REDEVELOPMENT IN 2018	SHEEN/ ODOR
MW-E1	None, casing stickup	Good	No	2016: Fuel odor, gas in water 2017: Not noted
MW2008-3	Flush	Very poor – Sufficient recharge after 15 hours	Yes	No
MW2008-4	Flush	Fair	No	Not noted
MW2008-5	Flush	Good	No	No
MW2008-6	Flush	Good	No	No
MW2008-7	Flush	Good	No	No
MW2015-01	Flush	Good – water silty at first, cleared	No	No
MW2015-02	Flush	Good	Yes	No
MW2015-03	Flush	Fair	No	Not noted
MW2015-04	-	Dry since installation in 2015	No	Dry
MW2015-05	Flush	Poor – turbid water, stabilized ~48 NTU	Yes	No
MW2015-06	Flush	Very poor – purged dry, sufficiently (but not fully) recharged to sample after 20 hours, turbid and orange water	Yes	No
MW2015-07	Flush	Good	No	Not noted

TABLE 3-1: LIST OF WELLS TO BE SAMPLED IN 2018 (CONTINUED)

WELL NAME	MONUMENT TYPE	PAST PRODUCTIVITY/NOTES	REDEVELOPMENT IN 2018	SHEEN/ ODOR
MW2015-08	Flush	Fair – 120 mL/min slight drawdown, 75 mL/min no drawdown – minimum turbidity ~400 NTU	Yes	No
MW2015-09	Flush	Very poor – purge dry and sampled when recharged	Yes	No
MW2015-10	Flush	Poor – turbid and orange water	Yes	No

Notes:
For definitions, see the Acronyms section.
Past productivity derived from stated pump rates, observations on drawdown, or estimated pump rates using sample volume and time to sample as noted in the Fall 2016 and Fall 2017 groundwater sampling logbooks (USACE 2016, USACE 2018). Generally: Very poor = recharge to 80% required 15 hours or more after purging dry; Poor = 40 – 80 mL/min; Fair = 80 – 120 mL/min, drawdown noted at higher rate; Good = 120-180 mL/min, no drawdown noted.
Notes on sheen and odor from the Fall 2016 and Fall 2017 groundwater sampling logbooks (USACE 2016, USACE 2018).
Gray shading indicates a well to be redeveloped in 2018 according to the Task Order.

The contaminants of concern identified during previous site investigations were GRO, DRO, RRO, BTEX, PAH, and lead. As part of this sampling effort, GRO, DRO, RRO, BTEX, PAH, and dissolved metals (zinc, iron, lead, and manganese) will be analyzed. In addition, compounds indicative of natural attenuation will be sampled, including nitrate/nitrite and sulfate. The monitoring well locations are shown on Figure 2-2. Proposed activities are described in the subsections below.

Mobilization. Right-of-entry permits were obtained by the USACE and are included as Appendix A. Coordination with the BES LLC Site Superintendent will be conducted prior to mobilization. All equipment, supplies, materials, and personnel will mobilize to Nome via Alaska Airlines.

Monitoring Well Development. If necessary, monitoring wells will be redeveloped using a surge block and submersible pump to cyclically remove sediment from the bottom of the well and well screen. Once the water is visually clear or turbidity decreases, water quality parameters will be monitored for stabilization. If a well is purged dry, it will be allowed to recover to 80 percent (%) of the initial volume and then sampled with no further purging. Well development will be conducted in accordance with the ADEC *Monitoring Well Guidance* (ADEC 2013), and documented using the *Well Purge and Development* form included in Appendix B. Development procedures are detailed in *BE-Standard Operating Procedure (SOP)-22 Monitoring Well Installation and Development* (Appendix C).

Groundwater Sample Collection. Groundwater wells will be gauged and sampled working from the least contaminated wells to the most contaminated. Groundwater levels and total well depths will be measured to a precision of 0.01 feet relative to the notched side of the well casing using an electronic water level meter or oil-water interface probe. If the casing is not notched, the water level will be measured relative to the north side of the casing. Depth to groundwater and depth to product (if present) will be measured. All wells at a site will be gauged consecutively.

Wells will be purged and sampled with a pneumatic bladder pump using low-flow methods. Dedicated Teflon-lined bladders and tubing will be used. To maintain consistency with prior sampling events for the subsequent trend analysis, the pump intake will be set approximately 1 to 2 ft into the water table. When sufficient yield is available, monitoring well parameters will be continuously monitored using a YSI 556 water quality meter with a flow-through cell and turbidity meter. Water quality parameters will be considered stable when at least three (four when using temperature) parameters have three successive readings, collected three to five minutes apart, within the criteria listed in Table 3-2. In addition to parameter stabilization, drawdown during purging will not exceed 0.3 feet (at a minimum flow rate of approximately 50 to 100 milliliters [mL]/min), when possible. If a well is purged dry, it will be allowed to recharge for 24 hours. Without further purging, the well will be sampled. For low yield wells that are purged dry, the well may be sampled when it has recharged to approximately 80% of its pre-purge volume per the ADEC *Field Sampling Guidance* (ADEC 2017b). Field stabilization readings will be recorded on the *Well Purge and Sampling Form* provided in Appendix B.

After stabilization, the flow-through cell will be disconnected and groundwater samples will be collected in accordance with low-flow sampling procedures based on USEPA and ADEC guidelines (USEPA 1996, ADEC 2017b) and *BE-SOP-09 Groundwater Sampling* (Appendix C). Volatile samples will be collected first followed by nonvolatile constituents. Dissolved metals samples (zinc, lead, iron and manganese) will be field-filtered using 0.45-micron filters. The samples will be stored in coolers containing frozen gel ice to maintain the proper holding temperature (2° to 6° Celsius). The sample coolers will be shipped to an ADEC-approved and DoD Environmental Laboratory Accreditation Program (ELAP) certified analytical lab (EMAX in Torrance, CA). Laboratory limits and project action limits are provided in Appendix D. Copies of the laboratory certifications are provided as Appendix E. Analytical methods, sample containers, and required quality control samples are listed in Table 3-3.

TABLE 3-2: STABILITY CRITERIA FOR LOW-FLOW PURGING

PARAMETER	UNITS	RECORDING PRECISION	STABILITY CRITERION	TYPICAL VALUE RANGE FOR STABILITY CRITERION
pH	—	0.01	±0.1	5 to 8
Temperature	°C	0.01	±3% (minimum of ±0.2°C)	0.1 to 15
Conductivity	µS/cm	1	±3%	80 to 1,000
Turbidity	NTU	0.1	± 10% or ± 1 NTU (whichever is greater)	0.3 to > 900
ORP	mV	1	±10 mV	-120 to 350
DO	mg/L	0.1	±10% or 0.2 mg/L (whichever is greater)	0 to 12

Notes:
For definitions, see the Acronyms section.
Stability criteria from ADEC *Field Sampling Guidance* (ADEC 2017b).
Only three parameters are required to stabilize, four when using temperature.

Field duplicate samples will be collected at a frequency of one per day and one for every 10 or fewer field samples (whichever is greater), for each matrix and for each target analyte (10%). At a minimum, one field duplicate will be collected per day of sampling at a site. Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of one MS/MSD set for every 20 or fewer field samples (5%). A trip blank will be submitted with each cooler containing volatile samples (GRO by AK101, or BTEX by SW8260B). One equipment blank will be collected per site (one per 20 samples).

Samples will be given a unique identifier reflecting the sample collection year, site, and location. Sample containers will be labeled to match the chain-of-custody (CoC) forms (CoC form example provided in Appendix B). Samples will be identified as follows:

- Year (18 for 2018)
- Site (NTSE)
- Well identification number (e.g., MW2008-3)

Location identifiers will be the well identification numbers and will be included on the CoC forms. Duplicate samples will be named by adding a ‘9’ to the monitoring well number (e.g. MW2008-39 will be a duplicate of MW2008-3). Duplicate samples will be given a sample collection time one hour after the primary sample time.

Investigation-Derived Waste (IDW) Management. IDW streams anticipated during the project include non-hazardous solid wastes (e.g. personal protective equipment and sampling supplies) and decontamination and purge water. Solid non-hazardous IDW will include nitrile gloves, paper towels, used (empty) glass jars, tubing, sample bladders, and other disposable sampling equipment. Solid IDW will be transported to the Nome Municipal Landfill for disposal. The decontamination and purge water will be collected in 5-gallon buckets and treated through a granular activated carbon filter on site. The treated water will be observed for sheen, and if no sheen is visible, will be discharged to a vegetated area away from surface water bodies. Non-hazardous solid wastes will be taken to the Nome Municipal Landfill for disposal.

Demobilization. All project equipment and supplies will be demobilized from the site via Alaska Air Cargo to Anchorage, Alaska. Once in Anchorage, equipment will be returned to its point of origin.

3.1 Regulatory Framework

Analytical groundwater samples will be compared to the ADEC Table C cleanup levels provided under 18 AAC 75 (ADEC 2017a). These cleanup levels (project action limits) are provided in Appendix D.

TABLE 3-3: NOME TANK SITE 'E' ANALYTES, ANALYTICAL METHODS, QUALITY CONTROL SAMPLES, SAMPLE CONTAINERS, PRESERVATION

ANALYTE	METHOD	# OF SAMPLES	MS/ MSD	DUP	TRIP BLANK	EQUIP. BLANK	CONTAINERS	PRESERVATION	PREPARATION HOLDING TIME	ANALYSIS HOLDING TIME
GRO	AK101	16	1	4	1	1	(3) 40-mL VOA vial with Teflon-lined septa	Cool 0 to 6 °C, HCl to pH<2	14 days	
DRO/RRO	AK102/ AK103	16	1	4	0	1	(2) 1-L amber glass jar	Cool 0 to 6 °C, HCl to pH<2	14 days	40 days
BTEX	SW8260B	16	1	4	1	1	(3) 40-mL VOA vial with Teflon-lined septa	Cool 0 to 6 °C, HCl to pH<2	14 days	
PAH	SW8270D SIM	16	1	4	0	1	(2) 1-L amber glass jar	Cool 0 to 6 °C	7 days	40 days
Dissolved Metals (Lead/ Zinc/Iron/ Manganese)	EPA 6020	16	1	4	0	1	(1)-250 ml HDPE bottle	Cool 0 to 6 °C, HNO_3 to pH<2	180 days	
Nitrate/ Nitrite	SM4500-NO_3 E	16	1	4	0	1	(1) 100-mL poly	Cool 0 to 6 °C	28 days	
Sulfate	SW9056A	16	1	4	0	1	(1) 100-mL poly	Cool 0 to 6 °C	28 days	

Notes:
For definitions, see the Acronyms and Abbreviations sections

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4.0 DOCUMENTATION AND REPORTING

After completion of the field activities and receipt of all analytical laboratory data, a report will be submitted for Nome Tank Site 'E' in pre-draft, draft, and final versions. The content of this report will include the following:

- A summary of project objectives;
- Key personnel involved in the project and their responsibilities;
- A narrative describing activities conducted, including a description of any deviations from the approved Work Plan;
- A summary of the 2018 findings; analytical results; analytical data tables; an interpretation of the analytical data, a contaminant trend analysis using MAROS software, and a summary of the data quality and usability;
- A discussion of historical data plus recently acquired groundwater geochemistry parameters to assess natural attenuation and evaluate the potential for biodegradation;
- Graphs displaying historical plus recently acquired groundwater concentrations versus time to assess contaminant trends;
- Tables and figures supporting the narrative report;
- Conclusions and recommendations;
- Appendices containing copies of all chemical data generated and field documentation (field notes, forms, copies of the chains-of-custody including the NPDL WO# 18-047, a sample summary, cooler receipt forms, and any variance requests; site photographs, Chemical Quality Data Review, ADEC Checklists, etc.); and
- A separate appendix that presents ADEC and stakeholder comments, as well as the associated responses.

The reports will be prepared in accordance with the MED (USACE 2017b).

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5.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2013. *Monitoring Well Guidance*. September.

ADEC 2017a. Alaska Administrative Code (18 AAC 75), *Oil and Other Hazardous Substances Pollution Control,* November.

ADEC 2017b. ADEC *Field Sampling Guidance.* Division of Spill Prevention and Response. Contaminated Sites Program. August.

U.S. Army Corps of Engineers (USACE) 2016. *Fall 2016 Groundwater Sampling Report - Final, Nome Tank Site 'E' Formerly Used Defense Site*. December. F10AK005211_04.04_0500_a

USACE 2017a*. Nome Tank Site 'E' POL Contamination Groundwater Sampling Work Plan Addendum.* March. F10AK005211_02.04_0502_a

USACE 2017b. *Manual for Electronic Deliverables, Requirements for Submittal of Documents, Chemistry Data, Geospatial Data, and Other Items*. April.

USACE 2017c. Prepared by Bethel Environmental Solutions LLC (BES). *Final 2016 Annual Report: Tank Demolition and Contaminated Soil Removal, Nome Tank Site 'E' Formerly Used Defense Site F10AK0052-11*. June. F10AK005211_07.08_0501_p

USACE 2018. *2017 Groundwater Sampling Report - Nome Tank Site 'E' Formerly Used Defense Site F10AK005211*. February. F10AK005211_02.04_0508_a

United States Environmental Protection Agency 1996*. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*. April.

Western Regional Climate Center (WRCC) 2017. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak9313>

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APPENDIX A

Right-of-Entry Permits

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NOME TANK SITE E POL CONTAMINATION F10AK0052-11 **DACA85-9-14-00 040**

DEPARTMENT OF THE ARMY
RIGHT-OF-ENTRY
ENVIRONMENTAL ASSESSMENT AND RESPONSE

The undersigned, herein called the "**Owner**", in consideration for the mutual benefits of the work described below, hereby grants the **UNITED STATES OF AMERICA**, hereinafter called the "Government", a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government an irrevocable and assignable right to enter in, on, over and across the land described in Schedule A, for a period not to exceed 60 months, beginning with the date of the signing of this instrument, and terminating with the earlier of the completion of the remediation or the filing of a notice of termination in the local land records by the representative of the United States in charge of the Nome Tank Site "E" POL Contamination project – F10AK0052-11 (formerly listed as Nome Tank Site "E" – F10AK0052-10), for use by the Government, its representatives, agents, and contractors, and assigns, as a work area for environmental investigation and response; including the right to:

- Investigate and collect samples; excavate and remove ordnance and explosive waste, contaminated soils, containerized waste, and replace with uncontaminated soil.
- Excavate and remove all storage tanks (above, at, and below ground level), contents, and appurtenant piping.
- Demolish and dispose of former military structures and debris.
- Construct, operate, maintain, alter, repair, and remove groundwater monitoring wells, groundwater purification and injection systems, landfarming infrastructure, soil treatment systems, appurtenances thereto, and other devices for the monitoring and treatment of contaminated soil, air, and water.
- Perform any other such work which may be necessary and incident to the Government's use for the investigation and response on said lands; subject to existing easements for public roads and highways, public utilities, railroads and pipelines and other rights, interests and encumbrances whether or not of record; reserving, however, to the landowner(s), their heirs, executors, administrators, successors and assigns, all such right, title, interest and privilege as may be used and enjoyed without interfering with or abridging the rights and right-of-entry hereby acquired.

2. The Owner also grants the right to enter and exit over and across any other lands of the Owner as necessary to use the described lands for the purposes listed above.

3. All tools, equipment, and other property taken upon or placed upon the land by the Government at any time within a reasonable period after the expiration of this permit of right-of-entry.

5. If any action of the Government's employees or agents in the exercise of this right-of-entry result in damage to the real property, the Government will, in its sole discretion, either repair such damage or make an appropriate settlement with the Owner. In no event shall such repair or settlement exceed the fair market value of the fee title to the real property at the time immediately preceding such damage. The Government's liability under this clause is subject to the availability of appropriation for such payment, and nothing contained in this agreement may be considered as implying that Congress will at a later date appropriate funds sufficient to meet any deficiencies. The provisions of this clause are without prejudice to any rights the Owner may have to make a claim under applicable laws for any damages other than those provided for herein.

5. The land affected by this permit or right-of-entry is located in the State of Alaska, and is described as follows:

Nome Gold Alaska Corporation properties located within Sections 11 and 12, Township 11 South, Range 34 West, Kateel River Meridian, as shown on Exhibit A

WITNESS MY HAND AND SEAL THIS 11 DAY OF Sept, 2014.

Nome Gold Alaska Corporation

Nikolai Ivanoff
Signature

Nikolai A. Ivanoff Land Manager
Printed Name & Title

P.O. Box 1718, Nome, AK 99762-1718
Address

1-907-304-1846
Telephone Number

UNITIED STATES OF AMERICA

[signature]
Name
Title
Real Estate Contracting Officer
US Army Engineer District, Alaska
P.O. Box 6898
JBER, Alaska 99506-0898
907-753-2859

NOME TANK SITE E POL CONTAMINATION F10AK0052-11

DACA85-9-14-00

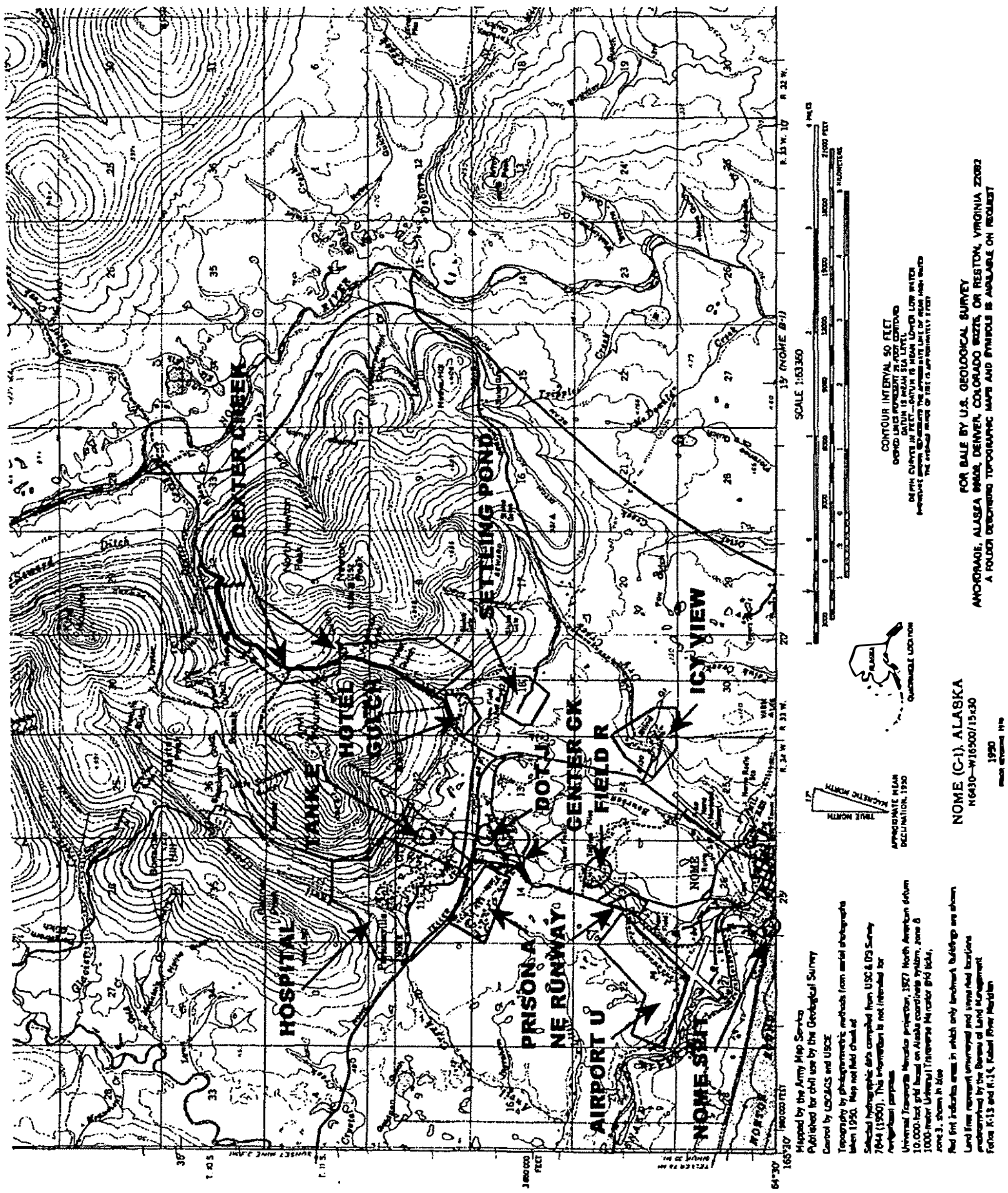
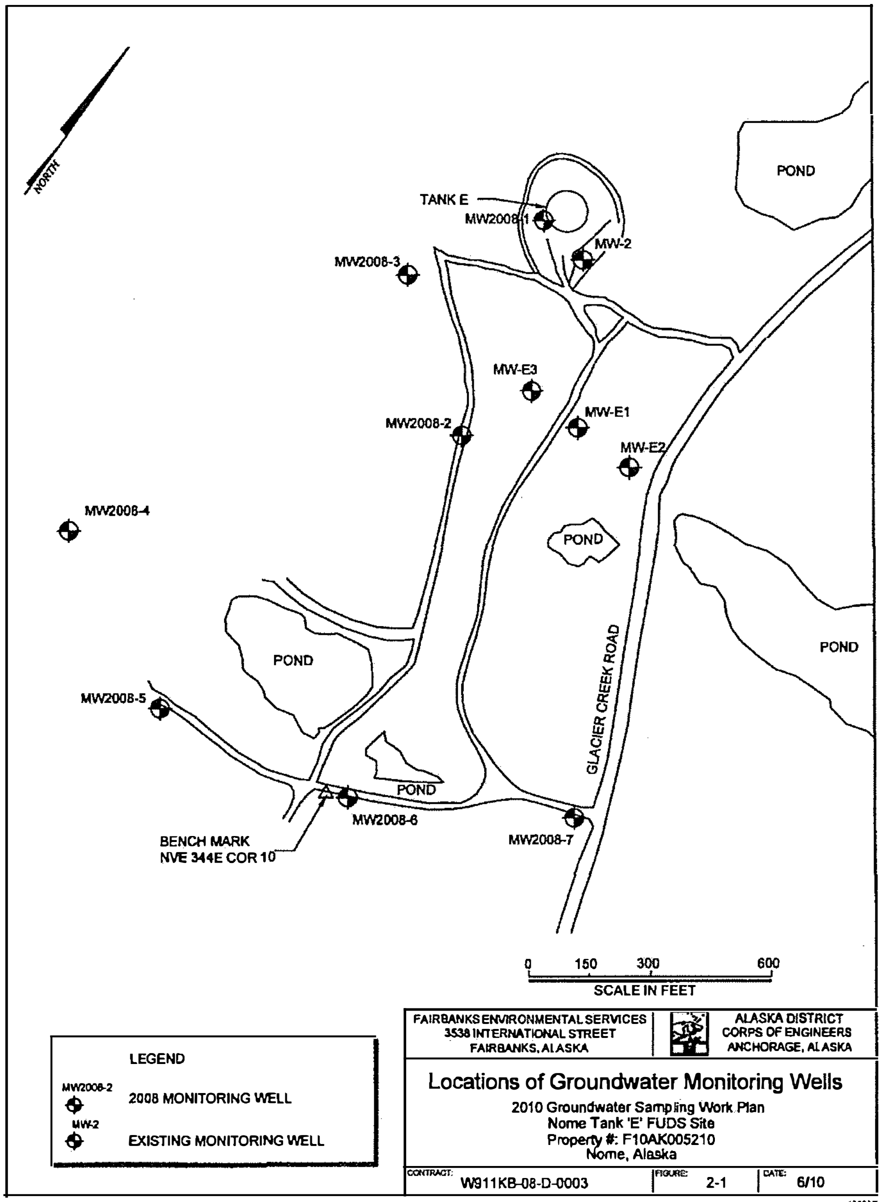


EXHIBIT A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POND
TANK E
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MW-2
MW2008-3
MW-E3
MW-E1
MW2008-2
MW-E2
MW2008-4
POND
POND
POND
GLACIER CREEK ROAD
MW2008-5
POND
MW2008-6
MW2008-7
BENCH MARK
NVE 344E COR 10
0 150 300 600
SCALE IN FEET
LEGEND
MW2008-2
2008 MONITORING WELL
MW-2
EXISTING MONITORING WELL
FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA
Locations of Groundwater Monitoring Wells
2010 Groundwater Sampling Work Plan
Nome Tank 'E' FUDS Site
Property #: F10AK005210
Nome, Alaska
CONTRACT: W911KB-08-D-0003
FIGURE: 2-1
DATE: 6/10

EXHIBIT A

NOME TANK SITE E POL CONTAMINATION F10AK0052-11

DACA85-9-14-00

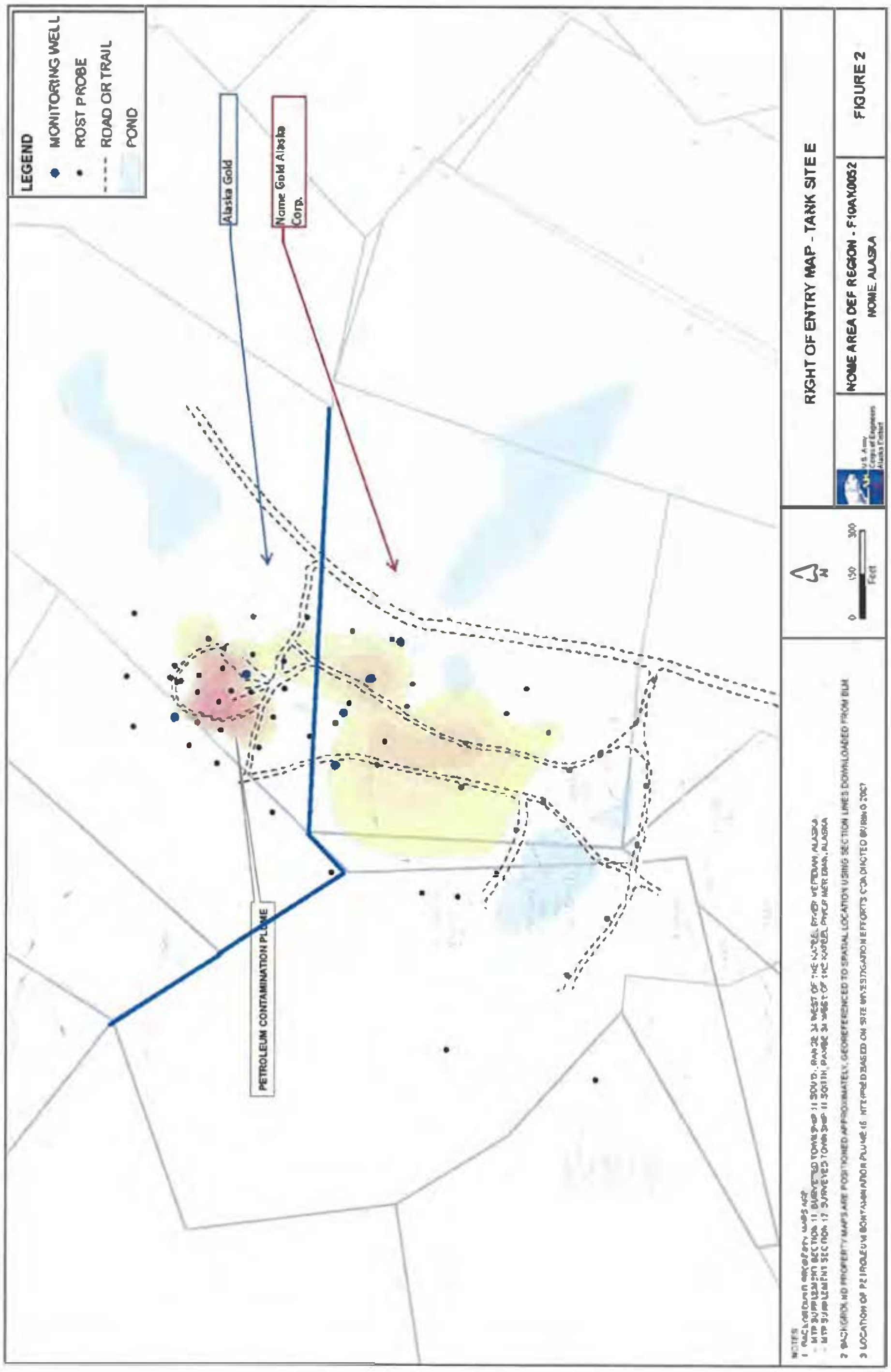

EXHIBIT A

NOME TANK SITE E POL CONTAMINATION F10AK0052-11

DACA85-9-14-00039

DEPARTMENT OF THE ARMY
RIGHT-OF-ENTRY
ENVIRONMENTAL ASSESSMENT AND RESPONSE

The undersigned, herein called the "**Owner**", in consideration for the mutual benefits of the work described below, hereby grants the **UNITED STATES OF AMERICA**, hereinafter called the "Government", a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government an irrevocable and assignable right to enter in, on, over and across the land described in Schedule A, for a period not to exceed 60 months, beginning with the date of the signing of this instrument, and terminating with the earlier of the completion of the remediation or the filing of a notice of termination in the local land records by the representative of the United States in charge of the Nome Tank Site "E" POL Contamination project – F10AK0052-11 (formerly listed as Nome Tank Site "E" – F10AK0052-10), for use by the Government, its representatives, agents, and contractors, and assigns, as a work area for environmental investigation and response; including the right to:

- Investigate and collect samples; excavate and remove ordnance and explosive waste, contaminated soils, containerized waste, and replace with uncontaminated soil.
- Excavate and remove all storage tanks (above, at, and below ground level), contents, and appurtenant piping.
- Demolish and dispose of former military structures and debris.
- Construct, operate, maintain, alter, repair, and remove groundwater monitoring wells, groundwater purification and injection systems, landfarming infrastructure, soil treatment systems, appurtenances thereto, and other devices for the monitoring and treatment of contaminated soil, air, and water.
- Perform any other such work which may be necessary and incident to the Government's use for the investigation and response on said lands; subject to existing easements for public roads and highways, public utilities, railroads and pipelines and other rights, interests and encumbrances whether or not of record; reserving, however, to the landowner(s), their heirs, executors, administrators, successors and assigns, all such right, title, interest and privilege as may be used and enjoyed without interfering with or abridging the rights and right-of-entry hereby acquired.

2. The Owner also grants the right to enter and exit over and across any other lands of the Owner as necessary to use the described lands for the purposes listed above.

3. All tools, equipment, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time within 90 days after the expiration of this permit of right of entry.

4. If any action of the Government's employees or agents in the exercise of this right-of-entry result in damage to the real property, the Government will, in its sole discretion, either repair such damage or make an appropriate settlement with the Owner. In no event shall such repair or settlement exceed the fair market value of the fee title to the real property at the time immediately preceding such damage. The Government's liability under this clause is subject to the availability of appropriation for such payment, and nothing contained in this agreement may be considered as implying that Congress will at a later date appropriate funds sufficient to meet any deficiencies. The provisions of this clause are without prejudice to any rights the Owner may have to make a claim under applicable laws for any damages other than those provided for herein.

5. The land affected by this permit or right-of-entry is located in the State of Alaska, and is described as follows:

Alaska Gold Company, LLC properties located within portions of Section 11 and 12, Township 11 South, Range 34 West of the Kateel River Meridian, as shown on Exhibit A

WITNESS MY HAND AND SEAL THIS 19th DAY OF September, 2014.

BERING STRAITS NATIVE CORP.
~~ALASKA GOLD COMPANY, LLC~~

[signature]
Signature

MATT GANLEY V.P.
Printed Name & Title

4600 DEBARR RD. ANCHORAGE, AK. 99507
Address

907-632-7197
Telephone Number

UNITED STATES OF AMERICA

[signature]
Signature Michael Y Sakai
Title
Real Estate Contracting Officer
US Army Engineer District, Alaska
P.O. Box 6898
JBER, Alaska 99506-0898
907-753-2859

NOME TANK SITE E POL
CONTAMINATION
F10AK0052-11

DACA85-9-14-00039

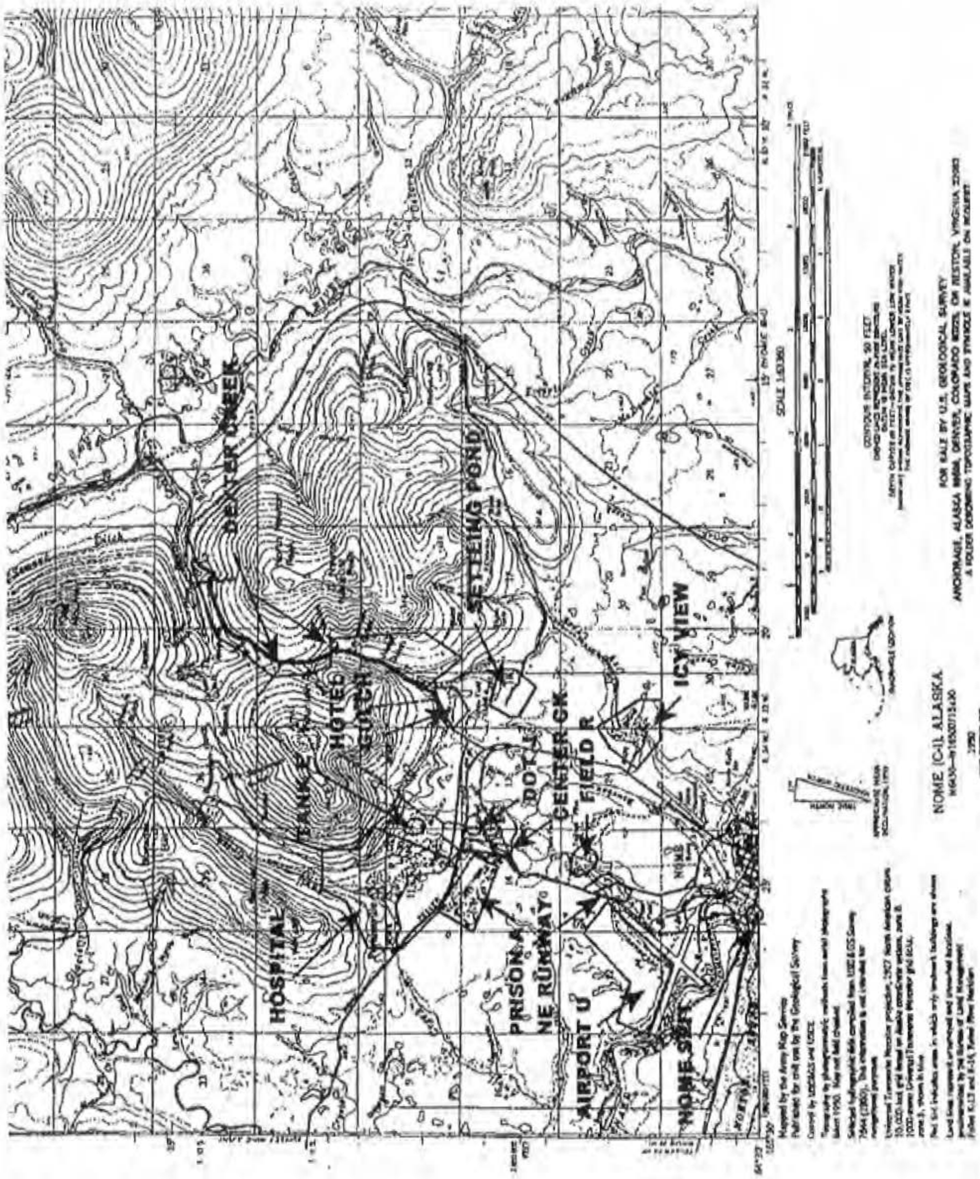

EXHIBIT A

deanna.kilburn@hdr.com

NOME TANK SITE E POL CONTAMINATION
F10AK0052-11

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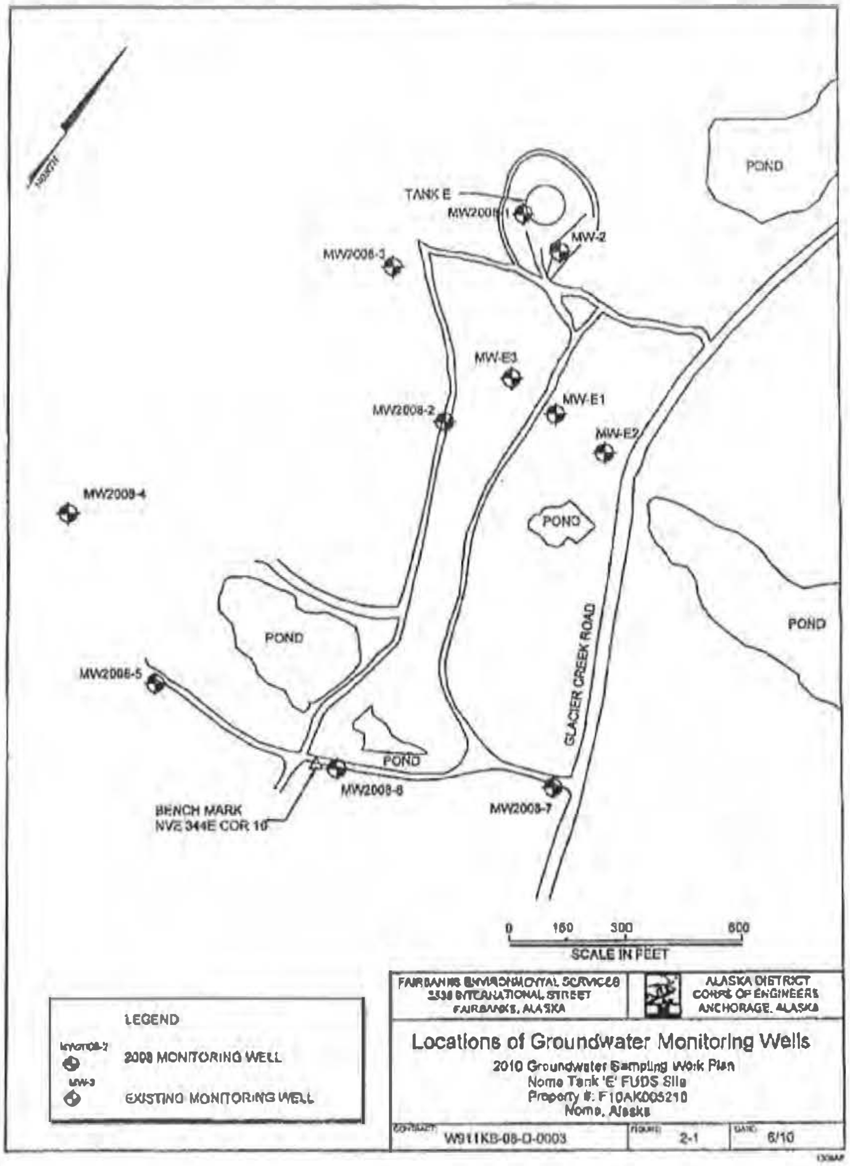

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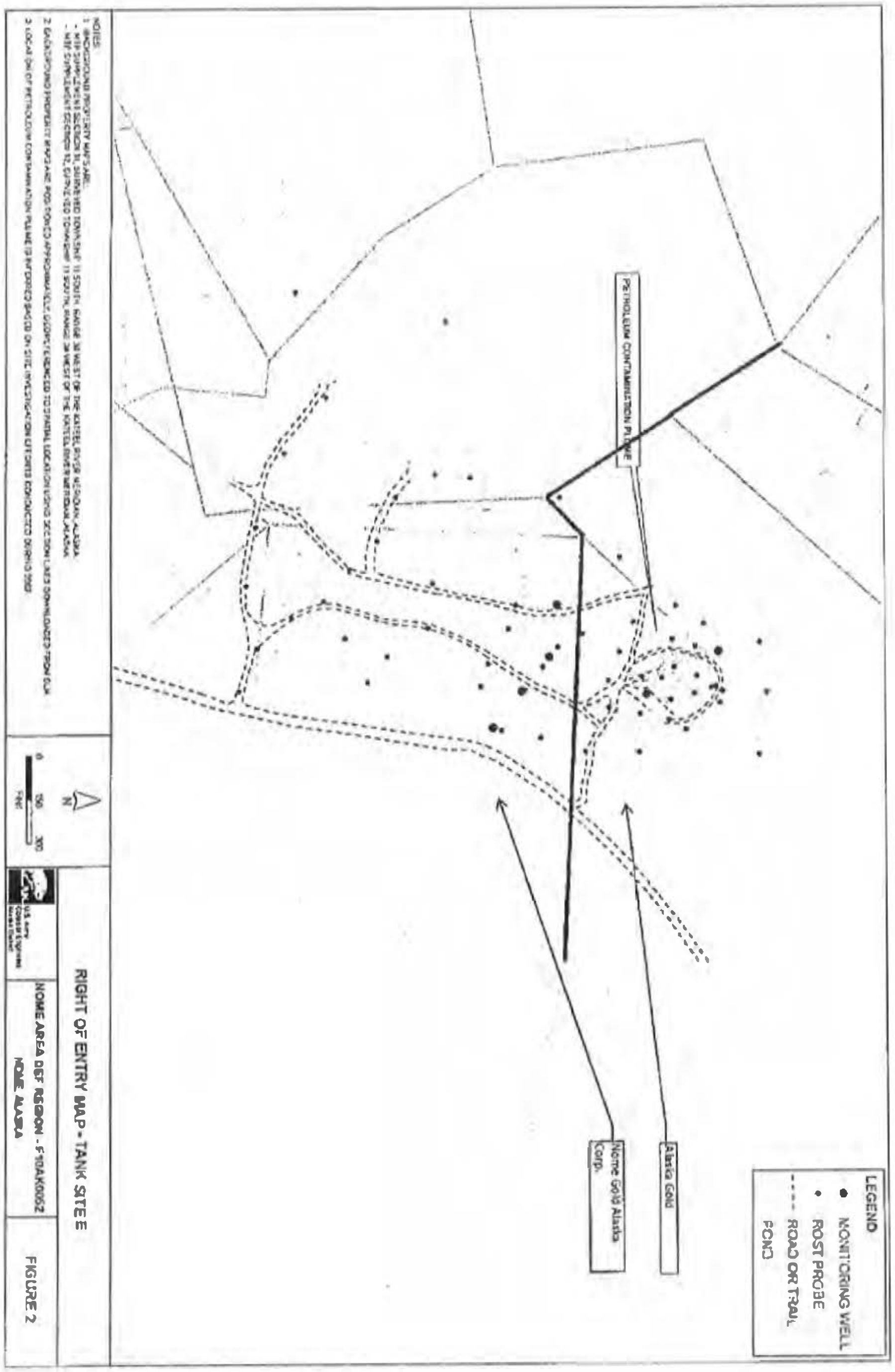

EXHIBIT A

AK Entity #: 4858F
Date Filed: 01/10/2013
State of Alaska, DCCED

200/25 RH

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Juneau
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Division of Corporations, Business and Professional Licensing

CP322738

RECEIVED
Juneau
JAN 10 2013
Division of Corporations, Business and Professional Licensing

STATE OF ALASKA
DEPARTMENT OF
COMMERCE
COMMUNITY AND
ECONOMIC DEVELOPMENT

Sean Parnell, Governor
Susan K. Bell, Commissioner
Don Habeger, Director

Division of Corporations, Business and Professional Licensing

Limited Liability Company

2013 Biennial Report

For the period ending December 31, 2012

- This report is due on January 02, 2013
- $200.00 if postmarked before February 02, 2013
- $247.50 if postmarked on or after February 02, 2013

Entity Name:	ALASKA GOLD COMPANY LLC	**Registered Agent**	
Entity Number:	4858F	**Name:**	NATIONAL REGISTERED AGENTS, INC
Home Country:	UNITED STATES	**Physical Address:**	9360 Glacier Hwy Ste 202, Juneau, AK 99801
Home State/Province:	~~DELAWARE~~ Alaska	**Mailing Address:**	9360 Glacier Hwy Ste 202, Juneau, AK 99801

Entity Physical Address:	115 6th Avenue West, Nome, AK 99762
Entity Mailing Address:	PO Box 640, Nome, AK 99762

Please include all officials. Check all titles that apply. Must use titles provided. Please list the names and addresses of the members of the foreign limited liability company (LLC). There must be at least one member listed. If the LLC is managed by a manager(s) there must also be at least one manager listed. Please provide the name and address of each manager of the company. You must also list the name and address of each person owning at least 5% interest in the company and the percentage of interest held by that person.

Name	Address	% Owned	Member	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank	Intentionally Left Blank
Bering Straits Native Corporation	4600 DeBarr Rd., Suite 200, Anchorage, AK 99508	100	X								
Gail Schubert, President	4600 DeBarr Rd., Suite 200, Anchorage, AK 99508	0									
Jim Towarak, Chairman	110 Front St., Suite 300, Nome, AK 99762	0									
Roy Ashenfelter, Secretary	110 Front St., Suite 300, Nome, AK 99762	0									
Homer Hoogendorn, Treasurer	110 Front St., Suite 300, Nome, AK 99762	0									

If necessary, attach a list of additional officials on a separate 8 1/2 X 11 sheet of paper

Purpose: EXPLORING FOR GOLD, ETC

NAICS Code: 212221 GOLD ORE MINING

New NAICS Code (optional)

K1090737

Signature ______ Printed Name Gail Schubert Date 11/28/12

PO Box 110806, Juneau, AK 99811-0806
Telephone (907) 465-2550 Fax (907) 465-2974 TDD Tel (907) 465-5437 Website http://commerce.alaska.gov/occ/

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Division of Corporations, Business and Professional Licensing

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Juneau
JAN 10 2013
Division of Corporations, Business and Professional Licensing

APPENDIX B

Field Forms

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Well Development Data Sheet

Site Name	Event	Well ID	Project Number
Weather Conditions	PID Readings of Total VOCs (ppm) Ambient _______ Breathing Zone _______ In Well _______	Date	Developer Initials

Well Information

Well Material / Size (in)	Drilling Water Added (gal)	As-Built TD of Casing (ft)	Borehole Diameter(in) / Gallons per linear foot (gal/ft)
PVC / 2 SS / 2 ___/___			4.5 / 0.362 6 / 0.555 8 / 0.898 10 / 1.34 (filter pack porosity = 0.3)
Depth to Product (ft TOC)	Depth to GW (ft TOC)	Initial TD of Casing (ft)	Product Thickness (ft) and Volume Recovered (mL)

Borehole Vol. (BV) water table well = (TD of casing – depth to water) ∗ gal/ft; submerged well = (TD of casing – Depth Top Filter Pack *gal/ft

Min Purge Vol. = 2 * Added Water + 3 * BV Max Purge Vol. = 2 * Added Water + 10 * BV

BV = (________ ft – ________ ft) ∗ ________ gal/ft = ________ gal (* 3.785 L/gal = ________ L)

Min Purge Vol. = 2 * ________ gal + 3 * ________ gal = ________ gal (* 3.785 L/gal = ________ L)

Max Purge Vol. = 2 * ________ gal + 10 * ________ gal = ________ gal (* 3.785 L/gal = ________ L)

Well Purging Information

Start Time	Finish Time	Final TD of Casing (ft)		Equipment Used for Purging	
				sprinkler pump w/ surge block submersible pump peristaltic pump	
Color	Odor	Sheen	Purged Dry	Stabilization Meters	Pump Intake Depth (ft btoc)
Clear Cloudy Brown Other:	None Moderate Faint Strong	Yes No	Yes No	YSI Multi Meter Hach Turbidimeter	(during stabilization)

Purging reached: Stability Max Vol. Purge water was: Treated Stored Other Note:

Time (HH:mm)	Volume (Gallons or Liters)		Acceptable Range to Demonstrate Stability						Water Level (feet btoc)
			± 3% or 0.2 °C (whichever is greater)	± 3%	± 10%	± 0.1	± 10 mV	± 10% or < 10	
	Change	Total	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (std units)	ORP (mV)	Turbidity (NTU)	

Suggested Notation

"——" = not measured "✓"= stable "+" = rising "-" = falling "*" = all parameters stable

____ Additional observations on back

Well Development Data Sheet

Site Name	Event	Well ID	Project Number
		Date	Developer Initials

Time (HH:mm)	Volume (Gallons or Liters)		Acceptable Range to Demonstrate Stability						Water Level (feet btoc)
			± 3% or 0.2 °C (whichever is greater)	± 3%	± 10%	± 0.1	± 10 mV	± 10% or < 10	
	Change	Total	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (std units)	ORP (mV)	Turbidity (NTU)	

WELL PURGE AND SAMPLING FORM

BRICE ENGINEERING

SITE ID: **WELL ID:** **PAGE:** **of**

PROJECT NAME		WELL CONDITION		DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT		DAMAGE PRESENT		1" Sch40	1.315"	1.049"	0.05
SITE		DEPTH TO WATER (FROM TOC)		2" Sch40	2.375"	2.067"	0.17
SAMPLER(S)		TOTAL DEPTH (FROM TOC)		3" Sch40	3.5"	3.068"	0.38
WEATHER/ TEMPERATURE		HEIGHT OF WATER COLUMN		4" Sch40	4.5"	4.026"	0.66
DATE		1 WELL VOLUME		6" Sch40	6.625"	6.065"	1.5
START TIME		3 WELL VOLUMES		8" Sch40	8.625"	7.981"	2.6
END TIME		DROWNED SCREEN?		2" Sch80	2.375"	1.939"	0.15

SAMPLING DATA

SAMPLE TYPE (GW, PRODUCT, OTHER):

IF PRODUCT IS PRESENT DESCRIPTION:

COLLECTION METHOD:

DEPTH TO PRODUCT (ft FROM TOC): THICKNESS OF PRODUCT (ft):

PUMP TYPE, OTHER SAMPLING APPARATUS

TUBING SIZE/TYPE:

EQUIPMENT DECON PROCEDURE:

FLOW RATE		SET DEPTH OF TUBING (ft btoc or ft btow)
Purging		
Sampling		

1000 mL/min = 0.264 gal/min

1 gal/min = 1893 mL/min

1 gal = 3.785 L 1 L = 0.264 gallons

DURING SAMPLING:

SAMPLING NOTES:

IF USING HYDRASLEEVE: DEPLOYED AT DEPTH (FT BTOC): DEPTH TO WATER AT TIME OF DEPLOYMENT (FT BOTC):

BOTTLE LOT NUMBER/S:

EQUIPMENT SERIAL NUMBERS: YSI Turbidimeter Other

FIELD WATER QUALITY PARAMETERS

Time	Cumulative Purged Volume (Gallons)	Water Level (ft BTOC)	Draw Down	Temperature (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	Color	Odor
				± 3% (min ±0.2°C/0.36°F)	± 0.1	± 3%	± 10mV	± 10% or 0.2 mg/L	± 10% or ± 1		

FINAL PURGE DATA: START TIME: END TIME: CUMULATIVE VOLUME: MAX FLOWRATE WITH STABLE DRAWDOWN:

ANALYTICAL SAMPLE INFORMATION

SAMPLE DESCRIPTION: (color, free product, odor, turbidity)

Sample ID	Date	Time	Matrix	Containers	QC	Analysis/ Preservative									Remarks

FIELD WATER QUALITY PARAMETERS WELL ID: PAGE: of

Time	Cumulative Purged Volume (Gallons)	Water Level (ft BTOC)	Draw Down	Temperature (°F or °C)	pH	Conductivity (µS/cm)	ORP (mV)	D.O. (mg/L)	Turbidity (NTU)	Color	Odor
				± 3% (min ±0.2°C/0.36°F)	± 0.1	± 3%	± 10mV	± 10% or 0.2 mg/L	± 10% or ± 1		

Chain-of-Custody Report

Collection Organization: **Chain-of-Custody:** **Cooler ID:** **NPDL Number: 18-047**

Project Number: **Laboratory:** **Bill To:** **Report To:**

COC Sample ID	Loc ID	Collection Date	Collection Time	Sampler	Quantity	Container Type	Volume	Preservative	Matrix	Analyses Requested Group	QC	TAT	Notes:

Special Instructions:

Cooler Temp: ________ Temperature Blank: ________

Relinquish By: Signature/Printed Name Date/Time — Relinquish By: Signature/Printed Name Date/Time

Received By: Signature/Printed Name Date/Time — Received By: Signature/Printed Name Date/Time

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APPENDIX C

Standard Operating Procedures

STANDARD OPERATING PROCEDURE

BE-SOP-01

Logbook Documentation and Field Notes

1.0 SCOPE AND PURPOSE

This Standard Operating Procedure (SOP) describes the criteria for the content and format of field logbooks. This SOP should be used to direct field personnel in the requirements for recording information in logbooks to ensure that field activities are properly documented.

Adequate documentation is necessary to describe the work performed. Attention to detail is vital as field logbooks are useful in the reporting process as well as in administrative and judicial proceedings. As a result, it is important that documentation be factual, complete, accurate, consistent, and clear.

2.0 PERSONNEL RESPONSIBILITIES

All site personnel who make logbook entries are responsible for maintaining the required documentation. The Field Team Lead will inform personnel as to who will be responsible for field notebook and form entries, care, and maintenance.

3.0 FIELD NOTEBOOK PROCEDURE

Field logbooks are bound, sequentially paginated, weatherproof notebooks used to record daily field activities. All notes will be entered in permanent ink.

3.1 FRONT COVER

The front cover of each logbook must include the following information:

- Project Name and Site ID
- Project Month(s) and Year
- Name(s) of field logbook author(s)

3.2 PROJECT CONTACT INFORMATION

Include project contact information on the inside front cover or first page of the logbook. Contact information includes names and phone numbers of subcontractors, project assistants, field team members, and emergency numbers from the Site-specific Safety and Health Plan.

3.3 DAILY ENTRIES

Logbook entries should abide by the following guidelines:

- Pages should never be removed from the logbook.

- All information must be printed legibly and in permanent ink.
- Entries should be written using objective and factual language and should be made in chronological order.
- Entries should be made on subsequent lines such that no blank lines exist on any page.
- If any space remains on the bottom of the last page of field entries at the conclusion of the day's entries, a diagonal line will be drawn and signed to obscure any additional entries on that page.
- If corrections are necessary, a single line may be drawn through the original entry. The corrected information may then be added and should be initialed and dated.

Each logbook page should include the following:

- Job name or number, date, and personnel at the top of each page.
- Date and signature at the bottom of each page, with a line through any remaining blank lines.

The daily standard logbook entries will include the following:

- Project name/ Site ID / Client
- Date and time of each activity (including work start/stop times); time will be based on the 24-hour clock (i.e., 2100 instead of 9 pm)
- Location of activity
- Weather conditions and changing weather that may impact site conditions
- Pertinent observations and comments
- Level of Personal Protective Equipment
- Full names of onsite personnel and affiliations (including all visitors)
- Daily objectives
- Field measurements and calibrations
- Deviations from the project-specific Work Plan
- Log of photographs
- Location of work areas (sketches or photographs when appropriate, with north arrow and approximate scale or "not-to-scale" noted)
- Survey and/or location of any sampling points, including swing-tie measurements
- For each sample record: date, time, sampler(s), sample ID, media, sample depth taken below ground surface (bgs), container(s), preservatives, QC (dup/MS/MSD), analysis, MeOH lot number, tare weight
- Sample shipments (when, what, destination)
- Waste tracking (when, how much, destination)
- References to relevant data sheets and documentation preserved outside of the logbook such as groundwater sampling data sheets, soil boring logs, etc. Do not duplicate information from the referenced sheets in the logbook.
- Decontamination times and methods
- Daily summary of activities (i.e. number of samples collected)

3.4 FIELD DATA SHEETS

All other supportive unbound data documentation that is a part of the field records should be maintained as part of the field forms. These records should be recorded in weatherproof ink and on weatherproof paper as necessary. Once back in the office, the unbound records should be scanned to create an electronic record to ensure document preservation.

3.5 ELECTRONIC DATA SHEETS

Electronic data documents include photographs, GPS and survey data, etc. All electronic data that are part of the field records will be downloaded to a designated location and maintained for project use. Take care when downloading, storing, and managing data. Naming conventions (according to the project-specific Work Plan) should be used to indicate the project, date, and other relevant information to ensure accurate use.

3.6 DOCUMENT CONTROL

At the conclusion of a task or project, all field documentation should be submitted to the Project Admin for record retention. All original documents should be kept in the project file.

STANDARD OPERATING PROCEDURE

BE-SOP-02

Sample Chain-of-Custody

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) describes the guidelines that will be met during sample handling, with respect to custody, and the proper techniques for documenting the custody on the Chain of Custody (COC) Form. This SOP will be used to direct field personnel in the techniques and requirements for maintaining the sample COC.

Proper handling, COC, and documentation are necessary to provide an accurate written record to track the possession, handling, and location of samples from the moment of collection through reporting.

2.0 MATERIALS

Materials needed for COC documentation include the following:

- Sample jars that have been filled and labeled in accordance with the project-specific Work Plan
- Quality control (QC) sample bottles
- Coolers with return address written on inside lid
- COC forms
- Two custody seals for the outside of each cooler
- Gallon-sized re-sealable plastic bag
- Clear tape
- Field logbook and/or appropriate field form
- Weatherproof pen

3.0 SAMPLE HANDLING PROCEDURE

The following sections describe sample COC documentation, field custody procedures, COC record, sample packaging, custody seals, transfer of custody, and laboratory custody procedures.

3.1 SAMPLE COC DOCUMENTATION

Sample identification documents will be carefully prepared so that sample identification and COC are maintained. Sample identification documents include the field logbook, sample labels, custody seals, and COC records.

A sample is in custody if it meets one of the following conditions:

- In an authorized person's physical possession,

- in an authorized person's view after being in possession,
- was in an authorized person's possession then secured (locked up), or
- kept in a secured area that is restricted to authorized personnel.

3.2 FIELD CUSTODY PROCEDURES

The following procedures will be used by field personnel:

- The sample collector will be personally responsible for the care and custody of samples collected until they are properly transferred to another company representative or relinquished to the laboratory.
- The sample collector will record sample data (time of collection, sample number, analytical requirements, and matrix) in the field logbook and/or appropriate field form.
- Sample labels shall be completed for each sample, using weatherproof ink.

3.3 CHAIN-OF-CUSTODY RECORD

The COC record will be fully completed prior to the shipment of samples. Information that should be included on a COC form includes the following:

- COC Number
- Cooler ID
- Project number
- Contractor name
- Sampler name or initials
- Sample identification
- Location ID
- Sample date and time (in 24-hour format)
- Laboratory analysis methods required for each sample jar
- Volume submitted
- Preservatives added to each sample jar
- Sample matrix (soil, water, or other)
- Quantity of containers per sample
- Turn-around-time
- Instructions or notes regarding the samples in the "Notes" section of the custody record

3.4 SAMPLE PACKAGING

Samples will be labeled and packaged according to the *Labeling, Packaging, and Shipping Samples* SOP (BE-SOP-03). The COC record will accompany all sample shipments. Two COC records should be prepared for each shipment. One COC record will be placed in a re-sealable plastic bag with the bag sealed shut to prevent water intrusion from the moisture in the cooler, and the bag taped to the inside lid of the cooler. The duplicate copy of the COC record will be retained by the sampler and distributed as necessary to the sample coordinators. Airway bills will also be retained with the COC record as documentation of transport.

3.5 CUSTODY SEALS

Custody seals are preprinted, adhesive-backed seals with security slots designed to break if the seals are disturbed. Seals will be signed and dated at the time of use. Sample shipping containers will be sealed in as many places as necessary to ensure that the container cannot be opened without tearing the custody seals. Typically one custody seal will be placed along the front opening, and one along the side or back opening of a cooler. Clear tape will be placed over the seals to ensure that seals are not accidentally broken during shipment.

If a sampler hand-transports the samples to the laboratory without sample shipment, custody seals are not required.

3.6 TRANSFER OF CUSTODY

When transferring the possession of samples from the field sampler to a transporter or to the laboratory, the sampler will sign, date, and note the time as "relinquished by" on the COC record. The receiver will also sign, date, and note the time as "received by" on the COC record. However, when samples are transported by a common commercial carrier such as Alaska Airlines or Federal Express, the carrier will not sign the COC record.

3.7 LABORATORY CUSTODY PROCEDURES

A designated sample custodian will accept custody of the shipped samples and verify that the sample identification number matches the COC record. Pertinent information about shipment, pickup, and courier will be entered in the "Remarks" section. The custodian then will enter sample identification number data into a bound logbook that is arranged by a project code and station number.

STANDARD OPERATING PROCEDURE

BE-SOP-03

Labeling, Packaging, and Shipping Samples

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) will be used to direct field personnel in the techniques and requirements of labeling samples for identification, packaging samples for safe transport, and shipping samples from the field to laboratory for analysis.

Proper labeling, packaging, transport, and shipping are necessary to maintain an accurate record to track the samples, as well as safe methods of packing and transporting samples.

2.0 MATERIALS

The term "environmental sample" refers to any sample that has less than reportable quantities of any hazardous constituents according to Department of Transportation (DOT) 49 CFR - Section 172. Equipment required for labeling, packaging, and shipping environmental samples includes:

- Weatherproof labels for sample containers
- Coolers
- Contractor-grade plastic bags
- Sorbent pads
- Plastic zip-top bags, quart and gallon
- Clear tape
- Strapping tape
- Bubble wrap and/or foam inserts
- Wet ice or gel ice packs
- Cooler labels: "keep cool/refrigerate/do not freeze," "this end up," "fragile," address, dangerous goods, excepted quantities, Saturday delivery (as necessary), etc.

3.0 PROCEDURES

This section describes the procedures for labeling, packaging, and shipping collected samples.

3.1 LABELING

Samples will be labeled using nomenclature defined in the project-specific Work Plan. All sample labels will be weatherproof and contain the following information:

- Project number
- Sampler name or initials
- Sample identification

- Sample date and time (in 24-hour format)
- Laboratory analysis methods required for sample jar
- Volume submitted
- Preservatives added to sample jar
- Sample matrix (soil, water, or other)
- Turn-around-time

Adhesive sample labels will be placed directly on the sample containers. If the labels do not adequately adhere because of moisture, secure the label by placing clear packaging tape over the label. Sample containers that are weighed by the laboratory prior to use **should not** have any additional labels placed on the container as it affects the weight. For those containers, use the label that is already provided on the jar. Only one label should be placed on each sample container.

3.2 PACKAGING

When packing sample containers for shipment, the steps below must be followed. Depending on how the sample temperatures are being maintained, follow either section 3.2.1 or 3.2.2.

1. Choose a cooler with structural integrity that will withstand shipment. Secure and tape the drain plug with duct tape.
2. Be sure that the caps on all containers are tight and will not leak. Make sure not to over-tighten and/or break the cap.
3. Ensure that the sample labels are intact, fully completed with the correct information, and that identification exactly matches the chain-of-custody record.
4. Use sufficient ice in packaging to ensure that samples are received by the laboratory at the proper temperature of 4°C ± 2°C.
5. Wrap and package containers sufficiently to prevent cross contamination, and ensure that containers remain intact during shipment.

3.2.1 Wet Ice

Note that if shipping via commercial air transport (e.g Alaska Air Cargo, Goldstreak), gel ice MUST be used as wet ice is NOT accepted.

When packing samples with wet ice, the following steps must be taken:

1. Place a sorbent pad in the cooler.
2. Line the cooler with a large contractor grade plastic bag. This will contain the wet ice and prevent fluids from reaching the cooler vessel.
3. Place a layer of bubble wrap along the bottom of the cooler, inside the garbage bag.
4. Wrap each sample container in bubble wrap or place it in a foam insert.
5. Place all sample containers in separate re-sealable plastic bags. Remove excess air and seal the bags. Three volatile organic analysis vials may be placed in one re-sealable bag.
6. Place the wrapped and bagged sample containers into the cooler with caps up.
7. Fill excess space between sample containers with additional bubble wrap.
8. Place wet ice around all sample containers. If desired, wet ice can be placed into re-sealable plastic bags and then placed around all sample containers.

9. Securely fasten the large plastic bag.
10. Fill remaining headspace with additional packing material.

3.2.2 Gel Ice

When packing samples with gel ice packs, the following steps must be taken:

1. Place a layer of frozen gel ice packs, along the bottom of the cooler. Cover the ice packs with a layer of bubble wrap and then place a sorbent pad over the bubble wrap.
2. Place sample containers in bubble wrap, bubble bags, in their original boxes, or in re-sealable bags with sorbent pads, depending on the type of container.
3. Place the containers into the cooler with caps up.
4. Fill excess space between sample containers with additional bubble wrap or gel ice.
5. Place another layer of bubble wrap along the top of the cooler, and as possible, place a layer of gel ice packs along the top of the cooler.
6. Fill remaining headspace with additional packing material.

Note that partially melted or soft gel ice packs should not be used to pack coolers for transport. A minimum of 8 frozen gel ice packs should be used to maintain sample temperature during transit for 24 hours.

After either wet ice or gel ice have been placed in cooler, the following steps must be taken:

1. Ensure that a temperature blank is included in each cooler. The temperature blank should be placed at the same level and next to the samples, preferably in the center of the cooler.
2. Place the completed Chain-of-Custody record for the laboratory into a plastic zip-top bag, tape the bag to the inner side of the cooler's lid, and then close the cooler.
3. Conduct a "shake test" by gently shaking the cooler and listen to determine if the containers are shifting in the cooler. If so, add additional packing material until there are no sounds of shifting when shaken.
4. Wrap strapping tape around each end of the cooler two times to secure the lid. Place completed custody seals spanning from the side of the cooler to the top of the lid at both the front and back of the cooler, at diagonally opposed corners, so that the cooler cannot be opened without breaking the seals. Place clear tape over custody seals.
5. Attach an address label containing the name and address of the shipper to the top of the cooler. Attach other stickers such as "Refrigerate" or "Keep Cool," "Do Not Freeze," and "Fragile." For samples with liquid (including preserved soil samples), place "up arrow" stickers on opposite sides of the cooler pointing in the same direction as the containers containing liquids.

3.3 SAMPLE SHIPPING

Environmental samples are shipped as non-hazardous materials unless the samples meet the established DOT criteria for a "hazardous material" or the International Air Transport Association (IATA)/International Civil Aviation Organization (ICAO) for air definition of "dangerous goods." If the samples meet criteria for hazardous materials or dangerous goods, then DOT and IATA/ICAO regulations must be followed, which includes having qualified personnel send shipments.

Attach a shipping address label to the top or front of the cooler, with sender information. Samples that are being shipped as "Dangerous Goods in Excepted Quantities" must have the appropriate labelling and be declared as dangerous goods to the shipping carrier. However, the dangerous goods "candy-striped" form and the Notification to Caption (NOTOC) are not required (IATA 2016).

3.3.1 Soil Sample Shipments

Soil samples preserved with methanol, and any excess methanol vials, must be shipped as "Dangerous Goods in Excepted Quantities" per the IATA regulations. The volume for excepted quantities of methanol is 30 mL per container and 300 mL per cooler. The class number is 3, flammable liquid, UN 1230.

3.3.2 Water Sample Shipments

Water samples preserved with hydrochloric acid or other insignificant amounts of preservative are not shipped as dangerous goods. However, excess pre-preserved sample containers with preservative must be shipped as "Dangerous Goods in Excepted Quantities" per IATA regulations. The volume for excepted quantities of hydrochloric acid or nitric acid is 30 mL per container and 300 mL per cooler, respectively. The class number is 8, corrosive.

Upon shipping samples, notify the laboratory contact that samples have been shipped and provide the airway bill number.

4.0 REFERENCES

IATA. (2016). *Dangerous Goods Regulations (DGR) Limited/Excepted Quantities Labels.*

STANDARD OPERATING PROCEDURE

BE-SOP-04

Quality Control Samples

1.0 INTRODUCTION

The purpose of this Standard Operating Procedure (SOP) is to direct field personnel in the requirements necessary for collecting field quality control (QC) samples from certain matrices. Field QC samples are collected to ensure the reliability and validity of field and laboratory data.

2.0 PROCEDURE

The following sections describe different QC sample types that will be required in project-specific Work Plans.

2.1 FIELD DUPLICATE

A field duplicate is collected to evaluate whether sample matrix inhomogeneity, contaminant distribution, or sample collection methods affect analytical precision. The field sampler will ensure the primary and duplicate samples are effectively identical. The duplicate sample is collected from the same location, at the same time, with the same techniques, and the same matrix.

Frequency of field duplicates, at a minimum, are 1 blind field duplicate per day and 1 blind field duplicate per 10 samples for each analytical method and matrix for offsite laboratory analysis of all field samples

The ADEC Field Sampling Guidance (August 2017) requires field duplicates be submitted as blind samples with a unique sample number and collection time to the approved laboratory for analysis.

2.2 MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

An MS/MSD sample is collected to evaluate the precision and accuracy of laboratory procedures in the project sample matrix. The MS/MSD compound will be added at the laboratory. This sample is collected at the same time as the primary sample using the same procedure, equipment, and type of container. The MS/MSD sample should be labeled the same as the primary sample with the same sample identification and time, and denoted on the Chain of Custody (CoC) to ensure that the project MS/MSD pair is used in the laboratory report. The frequency of MS/MSD samples collected at a minimum, is 1 per 20 or fewer samples, or one for each analytical batch, whichever is more frequent. The required frequency of the MS/MSD sample collected is specified in the Quality Assurance Project Plan (QAPP) and/or project-specific Work Plan, and the evaluation process is specified in the QAPP.

2.3 TEMPERATURE BLANK

A temperature blank will be included in each sample cooler. A temperature blank is measured by the laboratory to verify and document that the cooler temperature is received between 0-6 degrees Celsius (ºC). Temperature blanks consist of plastic bottles filled with water, which the laboratory typically prepares. Once shipments are received by the laboratory, the temperature will be recorded on the CoC to document preservation requirements were met.

2.4 TRIP BLANKS

Trip blanks will accompany samples analyzed for volatile analysis including GRO, BTEX, and VOCs. Trip blanks are prepared by the laboratory and used to establish that the sample has not been contaminated by external sources during the transport of sample bottles to and from the field. Trip blanks are samples of reagent-grade water, and properly preserved in a controlled environment by the laboratory prior to field mobilization. Trip blanks should be kept with the sample containers throughout the sampling process and returned to the laboratory with the other samples. One trip blank must accompany each cooler containing VOC and/or GRO samples, or as specified in the QAPP or project-specific Work Plan, and the evaluation process is specified in the QAPP. All trip blanks will be labeled and included on the CoC. Trip blank sample times will generally be recorded as 0800 on the CoC.

2.5 EQUIPMENT BLANKS

Equipment blanks will be used to evaluate the effectiveness of a decontamination procedure. The equipment rinsate blank is collected by pouring deionized water onto or into the sampling equipment after the equipment has been decontaminated, and then collecting the rinsate water for analysis of an identical analytical suite to that performed for the associated primary sample(s). The required frequency of equipment rinsate blanks collected is specified in the QAPP and/or project-specific Work Plan, and the evaluation process is specified in the QAPP. Decontamination procedures should be performed according to the *Equipment Decontamination* SOP (BE-SOP-14).

STANDARD OPERATING PROCEDURE

BE-SOP-09

Groundwater Sample Collection

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) provides field operation and protocols applicable to the collection of representative water samples from groundwater monitoring wells and temporary well points. This SOP is consistent with the Alaska Department of Environmental Conservation (ADEC) *Field Sampling Guidance* (ADEC 2017) and with the U.S. Environmental Protection Agency (EPA) *Low-flow (Minimal Drawdown) Ground-Water Sampling Procedure* (EPA 1996). For specific sampling locations and analytes, refer to the project-specific Work Plan.

2.0 EQUIPMENT AND SUPPLIES

Groundwater sampling equipment will include, but is not limited to the following:

- Appropriate level of Personal Protective Equipment (PPE)
- Camera
- Logbook, weatherproof pen, sharpie, etc.
- RAE Systems MiniRAE photoionization detector (PID) (or similar)
- *Well Purge and Sampling Forms*
- Sample labels
- Sampling containers and packing materials
- Tape measure
- Oil/water interface probe
- Submersible (stainless steel centrifugal Proactive Monsoon pump with low-flow controller, or equivalent), bladder pump, or peristaltic pump
- Disposable Teflon bailers and twine
- 5-gallon bucket
- Graduated cylinder or beaker
- Yellow Springs Instruments (YSI) water-quality meter (or similar)
- Potable water and/or deionized water
- Tubing (Teflon and/or silicone)
- Liquinox, Alconox, or equivalent

3.0 PROCEDURES

The following sections describe methods of recording field observations, field instrument calibration, air monitoring, free product and water level measurements; and purging and groundwater sampling using a submersible or peristaltic pump.

3.1 RECORDING FIELD OBSERVATIONS

The *Well Purge and Sampling Form* is intended to capture the information routinely collected during the sampling process for established monitoring wells. The field logbook is intended to record all equipment calibration checks, the wells sampled, sampling start and end times, or any other pertinent information not captured on the Groundwater Sampling Data Form. All data collected from temporary well points will be recorded in the field logbook.

3.2 FIELD INSTRUMENT CALIBRATION

Field instruments will be calibrated in accordance with the manufacturer's recommended procedures and frequency for each instrument. Operation and maintenance manuals will be available in the field for reference. Calibrations will be evaluated at the beginning of each day prior to use. If any reading is outside ± 5% from the expected calibration standard, the equipment will be re-calibrated. If after calibration, the instrument remains outside the expected calibration standard, the instrument will be removed from project use and replaced as soon as practicable.

3.3 AIR MONITORING

Air monitoring will be conducted to determine the presence of volatile organic compounds (VOCs) using a PID (MiniRAE 2000 or similar). PID readings will be monitored until stable and then recorded in the field logbook. Procedures in the Site-specific Safety and Health Plan (SSHP) will be followed if organic vapors are detected above concentrations listed in the air monitoring section of the SSHP. PID readings will be collected in the following situations:

- To monitor ambient conditions prior to removing the well plug and opening the well monument (either above ground or flush mount type).
- To monitor the ambient conditions in the breathing zone when opening the well or removing the well plug.
- To monitor the headspace immediately after removing the well plug.
- To monitor the breathing zone after the well plug has been removed.

3.4 FREE PRODUCT AND WATER LEVEL MEASUREMENT

The depth to free product (if present) and the depth to groundwater will be measured with an oil/water interface probe. Interface probes provide distinct responses when immersed in nonconductive product or conductive water. The type and order of measurement activities include determining the reference elevation, taking product and water level measurements, removing free product, and measuring the total casing depth as described below:

- Reference Elevation:
    - Pre-existing reference elevation (mark or notch on the casing)
    - No pre-existing reference elevation (typically for new wells)
        - Place a mark on the outside of the top north side of the well casing with indelible ink
- Product and Water Level Measurements (measured to the nearest 0.01 foot):
    - Measure the depth to free product (if present)

  - Measure the thickness of free product (if present)
  - Measure the depth to groundwater
- Free Product Removal (if present and more than 0.1 feet thick):
  - Remove free product with a bailer or peristaltic pump
  - Determine the volume of product removed
  - Dispose in accordance with the project-specific Work Plan
- Total Well Depth (after well construction is complete or after sampling in established wells):
  - Measure the depth to the bottom of the well casing
  - Compare to constructed well depth to determine the thickness of silt

3.5 PURGING

Purging is the process by which stagnant water is removed from the location prior to sampling and replaced with groundwater from the adjacent formation. This allows for a representative sample to be collected from the actual aquifer condition.

Purging will be conducted in accordance with EPA and ADEC low-flow guidelines (EPA 1996, ADEC 2017). Monitoring wells will be purged, at minimum, the equivalent of three times the well volume, or until the specific conductance, temperature, and pH parameters stabilize. The volume of water purged from each well will be calculated based on the length of the water column and well casing diameter. The formula to calculate the water volume to be purged is as follows:

Purge volume = 3 well casing volumes = (total depth of casing (ft) – depth to groundwater) * gallons per linear foot * 3. Refer to the *Well Purge and Sampling Form* for the various gallons per linear foot based on the casing diameter of the well.

$$V = {}^{*}0.041D^2(d_2 - d_1)$$

V= Volume in gallons

D = Inside diameter of well casing in inches

d_2 = Total depth of well in feet

d_1 = Depth to water surface in feet

*0.041 is based on a 1-inch diameter well.

Criteria for low-flow sampling are described below:

- Drawdown during purging will be less than 0.3 feet, if possible.
- Flow rates typically range from 0.1 to 1.0 liters per minute (0.03 to 0.3 gallons per minute), but higher rates are consistent with low-flow guidelines as long as the drawdown requirement is met.
- Water quality parameters will be measured and recorded as tabulated in Table 1.

If a well is purged dry, it will be allowed to recharge for 24 hours, or to 80% of its pre-purge volume. Without further purging, the well will be sampled. Water quality parameter stabilization is reached when three consecutive changes between successive readings at approximately 3-5 minute intervals are within the criteria in Table 1. Turbidity readings consistently below 10 nephelometric turbidity units (NTU) are considered stabilized.

Table 1 Stability Criteria for Low-Flow Purging

Parameter[1]	Units	Recording Precision	Stability Criterion	Typical Value Range for Stability Criterion
pH	-	0.01	±0.1	5 to 8
Temperature	°C	0.01	±0.2°C or ±3%	0.1 to 15
Conductivity	µS/cm	1	±3%	80 to 1,000
Turbidity	NTU	0.1	± 10% or ± 1 NTU (whichever is greater)	0.3 to > 900
Oxidation Reduction Potential (ORP)	mV	1	± 10	-120 to 350
Dissolved Oxygen (DO)	mg/L	0.1	± 10% or 0.2 mg/L (whichever is greater)	0 to 12

Note: Stability criteria from ADEC *Field Sampling Guidance* (ADEC 2017).
[1] Only three parameters are required to stabilize, four when using temperature.

3.6 GROUNDWATER SAMPLE COLLECTION USING A SUBMERSIBLE OR PERISTALTIC PUMP

Low-flow sampling will use a submersible, bladder, or peristaltic pump. For collection of VOCs, a peristaltic pump should not be used unless approval from ADEC is obtained prior to sample collection. If a peristaltic pump is used for sample collection, VOC samples should be collected using Hydrasleeve groundwater samplers. Wells that contain free product are not typically sampled. Samples should be collected using the following steps:

- Line the ground with plastic sheeting to provide a clean work environment
- Lower the pump (submersible or bladder) or tubing (peristaltic) to the target depth below the static water level. Record the depth of the pump on the *Well Purge and Sampling Form*. For wells screened across the groundwater interface, a pump intake of 1.0 to 2.0 feet below the static water level is typically used. For wells with submerged screens, set the pump intake at the middle of the screened interval.
- Begin purging water into a container (i.e. 5-gallon bucket). Adjust the flow rate so that drawdown does not exceed 0.3 feet (where possible). The flow rate can be slowly increased or decreased as needed.
- After the turbidity of the water decreases, connect the flow-through cell to begin measuring stabilization parameters. Continue to purge until stabilization criteria are met (Table 1) or three well casing volumes are removed. Remove the supply line from the flow-through cell and place such that the purge water is captured in a container.
- Don new nitrile gloves prior to handling sample bottles.
- Collect samples in the appropriate containers (with preservatives if required by the analytical methods):

  - If ADEC approves the use of a peristaltic pump for the collection of VOC samples, the following procedure will be followed: 40 mL vials for VOCs/GRO must be filled slowly to prevent splashing and entrainment of air bubbles. Reduce the pumping rate, if necessary, to control the flow rate. Care should be taken to avoid touching the mouth of the discharge line, the top of the sample bottle, the inside of the cap, or the Teflon septum. A septum that falls out of the cap onto the ground cannot be used. The vial will be filled completely so that a convex meniscus forms. The cap will then be secured and the bottle inverted, tapped firmly, and checked for the presence of air bubbles. Analytical results will be compromised if air is trapped in the sample container.
    - If a Hydrasleeve groundwater sampler is used in conjunction with a peristaltic pump for VOC/GRO sample collection, the *Hydrasleeve Standard Operating Procedure: Sampling Ground Water with a HydraSleeve* will be followed.
- Remove the submersible pump or the tubing.
- Measure the total depth of the well as described in Section 3.4
- Record measurements on *Groundwater Purge and Sampling Form*.

Waste will be handled in accordance with the project-specific Work Plan.

4.0 POTENTIAL INTERFERENCES

Two potential interferences associated with groundwater sampling are cross-contamination and a lack of sample representation due to improper well purging or stabilization. To prevent cross-contamination between wells, dedicated tubing will be placed in each well and all non-disposable equipment that may directly or indirectly come in contact with samples, will be decontaminated prior to use at a different location. The *Equipment Decontamination* SOP (BE-SOP-14) outlines the decontamination procedure. To ensure that representative conditions within the aquifer are captured during sample collection, the purge rate will be maintained at a rate that produces minimal drawdown until three well casings have been collected or until water quality parameters have stabilized as described in Section 3.5.

5.0 SAMPLE HANDLING, PRESERVATION, AND STORAGE

The following procedure will be followed for sample handling, preservation, and storage:

1. Transfer the sample into a labeled container
2. Preserve the sample or use pre-preserved sample bottles (if required by analytical method)
3. Cap the container and place into a cooler to maintain 4 ± 2°C (if required by analytical method)
4. Record all pertinent data in the site logbook and/or on the field data sheet
5. Complete the chain of custody form
6. Attach the custody seals to the cooler prior to shipment

Refer to the *Labeling, Packaging, and Shipping* SOP (BE-SOP-03) for procedures on labeling, packaging, and shipping samples.

6.0 DATA AND RECORD MANAGEMENT

The chain of custody form is signed over to the laboratory. A copy is kept with the sampling records. Refer to *Sample Chain of Custody* SOP (BE-SOP-02) for procedures on sample chain-of-custody.

7.0 QUALITY CONTROL AND QUALITY ASSURANCE

All field Quality Control (QC) sample requirements in the project-specific Work Plan must be followed. These may include trip blanks, equipment blanks, field duplicates, and the collection of additional sample volumes for the laboratory's quality control (matrix spike and matrix spike duplicates). The frequency of QC samples will be outlined in the project-specific Work Plan. Refer to the *Quality Control* SOP (BE-SOP-04) for procedures on quality control samples.

8.0 DECONTAMINATION

Refer to the *Equipment Decontamination* SOP (BE-SOP-14) for procedures on decontamination.

9.0 REFERENCES

ADEC. 2017 (August). Field Sampling Guidance.

EPA. 1996 (April). Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. EPA/540/S-95/504. R.W. Puls and M.J. Barcelona (authors).

STANDARD OPERATING PROCEDURE

BE-SOP-14

Equipment Decontamination

1.0 INTRODUCTION

The purpose of this Standard Operating Procedure (SOP) is to describe the procedures for decontamination of reusable equipment.

2.0 MATERIALS

Materials used for decontamination, include but are not limited to the following:

- Modified Level D Personal Protective Equipment (PPE)
- Brushes, typically stiff bristle
- 5-gallon buckets
- Liquinox, Alconox, or equivalent
- Spray or rinse bottles, or pump sprayer
- Paper towels
- Potable water and/or deionized water
- Distilled or deionized water
- Other hand tools for gross contamination (shovels, brooms, etc.)
- Garbage bags
- Plastic sheeting
- Approved waste containers

3.0 PROCEDURE

Decontamination of reusable sampling equipment will be conducted between sample locations and at the end of each work day. Drilling and excavation equipment will be decontaminated prior to beginning site activities, at the termination of site activities, and, if used for sampling, prior to each sampling event. Materials removed during decontamination will be collected and managed with similar waste streams in accordance with the project-specific Work Plan.

3.1 DECONTAMINATION AREA

Identify a localized decontamination area for drill rigs and other sampling equipment. Select the decontamination area so that decontamination fluids and soil wastes can be managed in a controlled area with minimal risk to the surrounding environment. The decontamination area should be large enough to allow temporary storage of cleaned equipment and materials before use, as well as to stage drums of decontamination investigation-derived waste (IDW). In the case of large decontamination areas (for example, for hollow-stem auger decontamination), line each area with a heavy-gauge plastic sheeting and include a collection system designed to capture potential decontamination IDW.

Decontamination areas should be laid out in such a manner as to prevent overspray while performing equipment and personnel decontamination.

Smaller decontamination tasks, such as surface water and sediment equipment decontamination, may take place at the sampling locations. In this case, all required decontamination supplies and equipment must be mobilized to the site and smaller decontamination areas for personnel and portable equipment will be provided as necessary. These locations will include basins or tubs to capture decontamination IDW, which will be transferred to larger containers as necessary.

3.2 PERSONNEL AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personnel decontamination involves removal of gross contamination first. Contaminated solids, such as mud, should be scraped and wiped from boots, and gloves should be removed by rolling off the hands, starting at the cuff, in such a way that the gloves are turned inside out during removal. If necessary, a clean pair of gloves should be worn to complete the boot cleaning process. Boots can be cleaned while being worn or following removal. Any remaining contamination should be removed using soapy water, brushes or other similar means such as a pressure washer, if available. Once all debris is removed, rinse with clean water. If boots are not laden with gross solid materials, a brush can simply be used to knock off or remove any residual solid materials. If the boots have contacted liquid-phase contaminants, it is important that the contaminants be removed using soapy water and a brush followed by a clean water rinse. If the contaminants have adsorbed into the boots, the boots must be disposed of and a replacement pair obtained before conducting any further field activities.

Following removal and cleaning of reusable PPE, field personnel should wash their hands or any exposed body parts which may have been in contact with the associated contaminated substances.

3.3 SAMPLING EQUIPMENT DECONTAMINATION

All reusable sampling equipment will be cleaned prior to use. The following procedure will be used by field personnel:

1. Remove as much gross contamination as possible off equipment at the sampling site.
2. If heavy petroleum residuals are encountered during sampling, an appropriate solvent such as methanol should be used to remove any petroleum residues from sampling equipment.
3. Wash water-resistant equipment thoroughly and vigorously with potable water containing laboratory-grade detergent such as Liquinox, Alconox, or equivalent. Use a bristle brush or similar utensil to remove any remaining residual contamination.
4. Rinse equipment thoroughly with potable water (1st rinse).
5. Rinse equipment thoroughly with distilled or deionized water (2nd rinse).
6. For sensitive field instruments, rinse equipment with distilled, deionized, or reagent grade water (3rd rinse).
7. Air dry at a location where dust or other fugitive contaminants may not contact the sample equipment. Alternatively, wet equipment may be dried with a clean, disposable paper towel to assist the drying process. All equipment should be dry before reuse.

Clean, dry sampling equipment will be stored within a protective medium (plastic bag, etc.) or staged in a clean area for future use.

Cleaning and decontamination of the equipment will be accomplished in stages and in such a way that the contamination does not discharge into the environment. Cleaning and decontamination wastes must be properly contained and disposed of in accordance with applicable state and federal regulations.

Disposable sampling equipment should be used whenever possible (e.g. drum thieves, bailers, spoons, etc.) to minimize the need to decontaminate these items.

3.4 HEAVY EQUIPMENT DECONTAMINATION

Gross decontamination of equipment will be performed prior to transporting or walking equipment within different areas or between contaminated areas or exclusion zones. Gross decontamination will focus on minimizing the spread of contaminated media as a result of equipment movement or transport. This decontamination process will use dry methods (brooms, wipes, shovels, etc.) within the exclusion zone in order to remove large, easily dislodged deposits of soil and other contaminated media prior to exiting the exclusion zone. The Site Manager may increase the level of gross decontamination based upon the effectiveness of dry decontamination.

Final decontamination will occur when equipment is no longer needed on site within a decontamination pad to allow for the collection of decontamination materials, sludge, and water. When equipment is removed permanently, it will be decontaminated using brushes and/or a pressure washer with a detergent wash followed by a fresh water rinse. All areas of the equipment that were potentially contaminated will be decontaminated as described in Section 3.3.

3.5 DRY DECONTAMINATION

Where dry decontamination is required, the following steps will be followed at the sampling site by field personnel:

1. Remove as much debris or contamination as possible using a dry brush or paper towel.
2. Spray equipment with a detergent/water mix.
3. Wipe down with a clean, dry paper towel.
4. Spray equipment with potable water.
5. Wipe down with a clean, dry paper towel.
6. Spray equipment with deionized or distilled water.
7. Wipe down with a clean, dry paper towel.

Dispose of all paper towels with other IDW and disposable sampling supplies.

4.0 INTERFERENCES

Improper decontamination may cause cross-contamination between sampling locations, analytical samples, or field screening instruments. To prevent cross-contamination of analytical samples, sampling equipment will be disposed of after one use, or decontaminated after, or prior to each use. Additionally, laboratory-certified clean glassware will only be used for storing analytical samples.

5.0 QUALITY CONTROL

Quality Control (QC) samples may be collected to verify that the decontamination process is effective. QC samples include the equipment rinsate blank and the equipment wipe sample, which are described in detail in the *Quality Control* SOP (BE-SOP-04).

STANDARD OPERATING PROCEDURE

BE-SOP-20

Water Quality Measurements

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) describes the methods for calibrating, maintaining, and operating the YSI 556 Multi-Parameter Water Quality Meter. The YSI 556 simultaneously measures numerous water quality parameters including temperature, conductivity, salinity, dissolved oxygen (DO), pH, and oxidation Reduction Potential (ORP). This SOP also describes the guidelines of operation for the Hach Portable Turbidity Meter.

2.0 EQUIPMENT

Water quality meters and instruments vary. Below is a list of the typical instruments used in the field:

- YSI 556 MDS Multi-Parameter Datalogger
- YSI 6-Series Sonde Field Cable
- Flow-Thru Cell
- Hach 2100P Portable Turbidity Meter
- Discharge hoses and fittings to attach sample tubing to the flow-thru cell
- Distilled water
- Calibration solution for YSI (pH 4, 7, and 10, ORP, and conductance)

3.0 PROCEDURES

It is important to note that different instrument models exist and therefore the appropriate operation and procedure manual should be referenced prior to use.

3.1 CALIBRATION FOR YSI 556

Calibration of all instruments for all field parameters needs to be conducted daily. Calibration readings should be documented in the field logbook. If a field instrument will not calibrate, perform troubleshooting as described in the manufacturer's manual. If the issue cannot be resolved, use a backup instrument. If that is not an option, contact the PM on whether data collection will continue or any other corrective actions should be taken. Flag any data recorded from a meter with suspected calibration problems on the field forms. Calibrate the YSI for pH, conductivity, ORP, and DO.

3.1.1 pH Calibration

Always calibrate pH with a 3-point calibration method. The 3-point calibration method accounts for the full pH range and assures maximum accuracy when the pH of the media to be monitored cannot be anticipated.

3.2 YSI MULTI-PARAMETER WATER QUALITY METER

3.2.1 Groundwater parameters

Follow the general procedure for collecting water quality parameters using a flow-thru cell:

- Secure the multi-meter probe to the flow-thru cell. Connect a short discharge tube to the effluent connector at the top of the flow-thru cell and run the other end of the discharge tube into a purge water container.
- Place the tube from the pump directly into the 5-gallon purge water bucket and start to purge approximately half a minute or until the purge water begins to visually clear up. The intent is to limit any initially high turbidity water from filling and settling in the flow-thru cell.
- Once visually clear, turn off pump briefly and secure the tube from the pump to the influent connector at the bottom of the flow-thru cell. Turn on the pump again and allow the flow-thru cell to completely fill with water.
- Begin low flow purging of the well at a flow rate of approximately 1 liter (0.25 gallons) every 3-5 minutes.
- Routinely measure and record DO, ORP, conductivity, pH, turbidity, temperature, and the depth to groundwater every 3-5 minutes until stabilized. A minimum of three recordings will be monitored and recorded.
- Continue to monitor until stabilized or until three well casing volumes have been purged. Use the following stabilization parameters:
    - ± 3% for temperature (minimum of ± 0.2 °C),
    - ± 0.1 for pH,
    - ± 3% for conductivity,
    - ± 10 mv for redox potential,
    - ± 10% for dissolved oxygen (DO), and
    - ± 10% for turbidity.

Note: Low flow purging and sampling are particularly useful for wells that purge dry or take one hour or longer to recover. If a well is low yield and purged dry, do not collect a sample until it has recharged to approximately 80% of its pre-purge volume, when practical.

- When parameters have stabilized, record final measurements and collect samples as per the project-specific Work Plan.

3.2.2 Surface Water Parameters

When collecting surface water samples a flow-thru cell is not required. Instead connect the probe sensor guard to the connector nut to protect the sensors. Place the probe in the water being careful not to disturb the bottom. Let sit for about 5 – 10 minutes and then take parameters.

3.3 HACH 2100P PORTABLE TURBIDITY METER

The Hach Model 2100P Portable Turbidimeter measures turbidity from 0.01 to 1000 NTU in automatic range mode with automatic decimal point placement. Use the following generic procedure for turbidity measurements:

- Collect a representative sample in a clean container. Fill a sample cell to the line (about 15 mL), taking care to handle the sample cell by the top. Cap the cell.
- Wipe the cell with a soft cloth to remove water spots and fingerprints.
- Apply a thin film of silicone oil. Wipe with a soft cloth to obtain an even film over the entire surface.
- Turn the instrument on and place on a flat sturdy surface.
- Insert the sample cell in the instrument call compartment so the diamond or orientation mark aligns with the raised orientation mark in from of the cell compartment.
- Press READ and the result will show in units of NTU.

Refer to the user's manual provided with rental equipment for calibration and maintenance documentation.

4.0 REFERENCES

Hach Company. 2008 (April). *Hach Portable Turbidity Meter Model 2100P Instrument and Procedure Manual*

YSI Environmental. 2009 (August). *YSI 556 Multi Probe System Operations Manual*

STANDARD OPERATING PROCEDURE

BE-SOP-21

Groundwater and LNAPL Measurements

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) describes the procedures and equipment that should be used to determine water levels, depth to floating product, or total depth in a groundwater monitoring well. Groundwater measurements can be used for several purposes during field activities, including but not limited to, measuring changes in time, and determining the magnitude of horizontal and vertical hydraulic gradients in an aquifer system.

A water level meter will typically be used to measure depth to groundwater (DTW), depth to product (DTP), and total depth (TD) in wells. If Light Non-Aqueous Phase Liquid (LNAPL) is present in the well, an oil-water interface probe will be used.

2.0 EQUIPMENT

Groundwater and LNAPL measurement equipment will include:

- Water Level meter with audible alarm and a cable marked in 0.01 foot increments
- Oil-water interface meter (only if LNAPL layer is suspected)
- Decontamination equipment

2.1 DEPTH TO WATER/DEPTH TO LNAPL MEASUREMENT

If the well is sealed with an airtight cap, allow time for the pressure to equilibrate after the cap is removed before measuring water levels. Take measurements until consecutive readings are within 0.01 foot.

Before taking measurements, ensure a reference point is established. For easy reference, mark the point with a permanent surveyor's reference mark, such as a small notch cut into the casing or a permanent ink mark at the top of the casing. If no reference mark is present, mark the north side of the monitoring well casing.

Measure DTW and DTP as follows:

- With the water level indicator switched on, slowly lower the water level meter or oil-water indicator probe down the monitoring well until the probe contacts the groundwater or LNAPL surface, as indicated by the audible alarm. Do not let the probe tip and tape free-fall down the well. Always hold onto the meter's reel handle.
- Raise the probe out of the water or LNAPL until the audible alarm stops. Continue raising and lowering the probe until a precise level is determined within 0.01 foot.

- If LNAPL is present in the well, measure and record the depth from the TOC reference point to the top surface of the LNAPL layer (that is, DTP). The oil-water indicator probe alarm will sound a continuous tone when LNAPL is detected.
- Continue to lower the probe until the meter indicates the presence of groundwater. The alarm will typically emit a beep when water is detected. Measure the first static groundwater level and record the measurement (DTW) from the reference point to the top of the static groundwater level.
- Record the measurements in the field logbook or on the *Well Purge and Sampling Form*.

2.2 TOTAL DEPTH MEASUREMENT

Use the following procedures to measure the TD of a groundwater monitoring well:

- Slowly lower the water level meter until the cable goes slack. Do not let the probe tip and tape free-fall down the well. Always hold onto the meter's reel handle.
- Gently raise and lower the water level meter probe to tap the bottom of the well.
- Record the reading on the cable at the established reference point to the nearest 0.01 foot.

If there is an offset between the bottom of the probe and the water level sensor, adjust the measurement accordingly. Record the TD measurement in the field logbook or on the *Well Purge and Sampling Form*.

STANDARD OPERATING PROCEDURE

BE-SOP-51

Material Handling/ Manual Lifting

1.0 INTRODUCTION

This Standard Operating Procedure (SOP) describes the guidelines that should be met when material handling/manual lifting at and around a job site.

2.0 GENERAL POLICY

Back injuries are one of the most common and most preventable injuries on the job site. After determining the object is within lifting capabilities, warm up by stretching before doing any lifting or strenuous work. Use proper lifting procedures - bend at the knees rather than the waist, and use your leg muscles, not your back. Keep a wide base of support by standing with legs hip distance apart, and never twist while lifting. Take proper breaks during repetitive tasks, and get help when moving heavy or awkward objects. Use lifting devices when possible. If necessary, have a competent worker or supervisor demonstrate the proper method of bending and lifting.

Identifying when materials require lifting equipment, such as slings and chokers, is key. Conduct an evaluation of the proper equipment to use to assist in lifting if manual lifting techniques are not safe.

STANDARD OPERATING PROCEDURE

BE-SOP-52

Driver Safety Program

1.0 INTRODUCTION

This standard operating procedure (SOP) is for all individuals who will operate motorized vehicles.

2.0 DRIVER SAFETY AND POLICIES

Statistics show that many accidents involve those in company vehicles. The purpose of this SOP is to avoid injuries, possible loss of life, and costs related to accidents involving company vehicles.

2.1 COMPANY AUTO USAGE POLICIES

- Company vehicles are for company business only, and are to be driven by active employees only (unless permission is given by a supervisor) who are appropriately licensed, certified, and/or trained for the vehicle in which they are operating.
- Vehicles are to be maintained in good operating condition. Drivers will conduct a complete safety walk-around prior to entering the vehicle and inspect the vehicle on a daily basis prior to use.
- Occupants will wear seatbelts when vehicles are in motion.
- Vehicles may not be operated while using cell phones. This includes sending or receiving calls, texting, emailing or any other application on the phone (this includes personal vehicles on company business).
- Vehicles are strictly prohibited from use while under the influence of alcohol.
- Vehicles may not be operated while eating or drinking, reading, or using other devices that distract from driving.
- Vehicles must be driven within the laws and regulations for operating motorized vehicles (i.e. valid license, posted speed limits, etc.) and within the manufacturer's operating guidelines.
- Vehicles may not be used to transport alcohol.
- Vehicles must be clean of all garbage, paper, boxes, etc. when no longer in use.
- Smoking is prohibited in company vehicles.
- Vehicle loads must be secured and within the manufacturer's specs and the legal size/weight limits.
- If involved in an accident while on company business, it must be reported to the Safety Officer as soon as possible. All required forms must be completed in a timely manner.

2.2 NEAR MISS POLICY

Near misses should be reported to one's immediate supervisor and forwarded to the Safety Officer. An investigation will be conducted as soon as possible.

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APPENDIX D

Project Action Limits and Laboratory Limits

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Project Action Limits and Laboratory Limits

Analyte	Method	CASRN	c/nc/m	Units	Project Action Limit[1]	Laboratory Limits[2]		
						DL	LOD	LOQ
POL								
Gasoline range organics (GRO)	AK101	NS	nc	µg/L	2200	20	50	100
Diesel range organics (DRO)	AK102	NS	nc	µg/L	1500	100	200	500
Residual range organics (RRO)	AK103	NS	nc	µg/L	1100	79	200	1000
Metals/Inorganics								
Dissolved Lead	SW6020A	7439-92-1	nc	µg/L	15	0.05	0.1	1
Dissolved Zinc	SW6020A	7440-66-6	nc	µg/L	6000	5	10	20
Dissolved Iron	SW6020A	7439-89-6	-	µg/L	N/A	50	100	200
Dissolved Manganese	SW6020A	7439-96-5	-	µg/L	N/A	0.25	0.5	1
Sulfate	SW9056A	14808-79-8	-	µg/L	N/A	125	250	500
Nitrate + Nitrite	SM 4500-NO3 E	NS	-	µg/L	N/A	20	50	100
VOC								
Benzene	SW8260B	71-43-2	ca	µg/L	4.6	0.1	0.2	1
Ethylbenzene	SW8260B	100-41-4	ca	µg/L	15	0.1	0.2	1
m/p-Xylenes[4]	SW8260B	136777-61-2	nc	µg/L	190	0.21	0.5	2
o-Xylene[4]	SW8260B	95-47-6	nc	µg/L	190	0.1	0.2	1
Toluene	SW8260B	108-88-3	nc	µg/L	1100	0.1	0.2	1
PAH								
Acenaphthene	SW8270D SIM	83-32-9	nc	µg/L	530	0.005	0.01	0.02
Acenaphthylene	SW8270D SIM	208-96-8	nc	µg/L	260	0.005	0.01	0.02
Anthracene	SW8270D SIM	120-12-7	nc	µg/L	43	0.005	0.01	0.02
Benz[a]anthracene	SW8270D SIM	56-55-3	m	µg/L	0.12	0.005	0.01	0.02
Benzo[a]pyrene	SW8270D SIM	50-32-8	m	µg/L	0.034	0.005	0.01	0.02
Benzo[b]fluoranthene	SW8270D SIM	205-99-2	m	µg/L	0.34	0.005	0.01	0.02
Benzo[g,h,i]perylene	SW8270D SIM	191-24-2	nc	µg/L	0.26	0.005	0.01	0.02
Benzo[k]fluoranthene	SW8270D SIM	207-08-9	m	µg/L	0.8	0.005	0.01	0.02
Chrysene	SW8270D SIM	218-01-9	m	µg/L	2	0.005	0.01	0.02
Dibenz[a,h]anthracene	SW8270D SIM	53-70-3	m	µg/L	0.034	0.005	0.01	0.02
Fluoranthene	SW8270D SIM	206-44-0	nc	µg/L	260	0.005	0.01	0.02
Fluorene	SW8270D SIM	86-73-7	nc	µg/L	290	0.005	0.01	0.02
Indeno[1,2,3-cd]pyrene	SW8270D SIM	193-39-5	m	µg/L	0.19	0.005	0.01	0.02
Methylnaphthalene, 1-	SW8270D SIM	90-12-0	ca	µg/L	11	0.005	0.01	0.02
Methylnaphthalene, 2-	SW8270D SIM	91-57-6	nc	µg/L	36	0.005	0.01	0.02
Naphthalene	SW8270D SIM	91-20-3	ca	µg/L	1.7	0.01	0.02	0.05
Phenanthrene	SW8270D SIM	85-01-8	nc	µg/L	170	0.005	0.01	0.02
Pyrene	SW8270D SIM	129-00-0	nc	µg/L	120	0.005	0.01	0.02

Notes:

[1] Project action limits are the Table C groundwater cleanup levels in 18 AAC 75 (ADEC 2017).

[2] Laboratory limits for all methods from EMAX.

[3] Analyte not listed in ADEC Table C. Project Action Limit is listed as N/A.

[4] The total xylenes cleanup level is presented for m,p-xylenes and o-xylene. For non-detect results, the LODs will be summed.

ca = carcinogen

DL = detection limit

LOD = limit of detection

LOQ = limit of quantitation

m = mutagen

N/A = not applicable

nc = noncarcinogen

NS = not specified

µg/L = microgram(s) per liter

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APPENDIX E

Laboratory Certifications

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CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, CA 90501

has been assessed by ANAB
and meets the requirements of

ISO/IEC 17025:2005 and DoD-ELAP

while demonstrating technical competence in the field of

TESTING

Refer to the accompanying Scope of Accreditation for information regarding the types of tests to which this accreditation applies.

L2278
Certificate Number

ANAB Approval

Certificate Valid: 11/13/2017-01/10/2020
Version No. 001 Issued: 11/13/2017

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005 AND DOD QUALITY SYSTEMS MAUAL FOR ENVIRONMENTAL LABORATORIES (DOD QSM V5.0)

EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, CA 90501
Kenette Pimentel
310-618-8889

TESTING

Valid to: **January 10, 2020** Certificate Number: **L2278**

Environmental

Non-Potable Water		
Technology	**Method**	**Analyte**
GC	AK101	GRO
GC	AK102	DRO
GFAA	CA 939M	Organo Lead
Platinum Electrode	EPA 120.1	Specific Conductance
Titrimetric	EPA 130.2	Hardness
Electrode	EPA 150.1	pH
Gravimetric	EPA 160.1	TDS
Gravimetric	EPA 160.2	TSS
Gravimetric	EPA 160.3	Total Residue
Gravimetric	EPA 160.5	Settleable Residue
Turbidimetric	EPA 180.1	Turbidity
ICP	EPA 200.7	Aluminum
ICP	EPA 200.7	Antimony
ICP	EPA 200.7	Arsenic
ICP	EPA 200.7	Barium
ICP	EPA 200.7	Beryllium
ICP	EPA 200.7	Boron
ICP	EPA 200.7	Cadmium
ICP	EPA 200.7	Calcium
ICP	EPA 200.7	Chromium
ICP	EPA 200.7	Cobalt

ANSI-ASQ National Accreditation Board

ANAB

Non-Potable Water		
Technology	**Method**	**Analyte**
ICP	EPA 200.7	Copper
ICP	EPA 200.7	Iron
ICP	EPA 200.7	Lead
ICP	EPA 200.7	Lithium
ICP	EPA 200.7	Magnesium
ICP	EPA 200.7	Manganese
ICP	EPA 200.7	Molybdenum
ICP	EPA 200.7	Nickel
ICP	EPA 200.7	Potassium
ICP	EPA 200.7	Selenium
ICP	EPA 200.7	Silver
ICP	EPA 200.7	Sodium
ICP	EPA 200.7	Strontium
ICP	EPA 200.7	Thallium
ICP	EPA 200.7	Tin
ICP	EPA 200.7	Titanium
ICP	EPA 200.7	Vanadium
ICP	EPA 200.7	Zinc
ICP-MS	EPA 200.8	Aluminum
ICP-MS	EPA 200.8	Antimony
ICP-MS	EPA 200.8	Arsenic
ICP-MS	EPA 200.8	Barium
ICP-MS	EPA 200.8	Beryllium
ICP-MS	EPA 200.8	Boron
ICP-MS	EPA 200.8	Cadmium
ICP-MS	EPA 200.8	Calcium
ICP-MS	EPA 200.8	Chromium
ICP-MS	EPA 200.8	Cobalt
ICP-MS	EPA 200.8	Copper
ICP-MS	EPA 200.8	Iron
ICP-MS	EPA 200.8	Lead
ICP-MS	EPA 200.8	Lithium
ICP-MS	EPA 200.8	Magnesium
ICP-MS	EPA 200.8	Manganese
ICP-MS	EPA 200.8	Molybdenum
ICP-MS	EPA 200.8	Nickel
ICP-MS	EPA 200.8	Potassium
ICP-MS	EPA 200.8	Selenium

Non-Potable Water		
Technology	**Method**	**Analyte**
ICP-MS	EPA 200.8	Silver
ICP-MS	EPA 200.8	Sodium
ICP-MS	EPA 200.8	Strontium
ICP-MS	EPA 200.8	Thallium
ICP-MS	EPA 200.8	Tin
ICP-MS	EPA 200.8	Titanium
ICP-MS	EPA 200.8	Uranium
ICP-MS	EPA 200.8	Vanadium
ICP-MS	EPA 200.8	Zinc
IC	EPA 218.6	Hexavalent Chromium
COLD VAPOR	EPA 245.1	Mercury
IC	EPA 300.0	Fluoride
IC	EPA 300.0	Chloride
IC	EPA 300.0	Nitrite
IC	EPA 300.0	Bromide
IC	EPA 300.0	Nitrate
IC	EPA 300.0	Phosphate
IC	EPA 300.0	Sulfate
IC	EPA 300.0	Bromate
IC	EPA 300.0	Chlorate
IC	EPA 300.0	Nitrate-Nitrite
IC	EPA 300M	Lactate
IC	EPA 300M	Acetate
IC	EPA 300M	Propionate
IC	EPA 300M	Butyrate
IC	EPA 300M	Pyruvate
IC	EPA 310.1	Alkalinity
IC	EPA 314.0	Perchlorate
Spectrometric	EPA 353.3	Nitrate-N
Spectrometric	EPA 354.1	Nitrite-N
Spectrometric	EPA 365.2	Ortho-phosphate
Spectrometric	EPA 335.2	Cyanide
Spectrometric	EPA 350.2	Ammonia
Spectrometric	EPA 351.3	TKN
Spectrometric	EPA 365.2	Phosphorus
Spectrometric	EPA 370.1	Silica
Titrimetric	EPA 376.1	Sulfide
Spectrometric	EPA 376.2	Sulfide

Non-Potable Water		
Technology	**Method**	**Analyte**
Electrode	EPA 405.1	BOD
Spectrometric	EPA 410.4	COD
Combustion-IR	EPA 415.1	TOC
Spectrometric	EPA 420.1	Phenols
Spectrometric	EPA 425.1	MBAS
GC	EPA 504.1	DBCP
GC	EPA 504.1	EDB
GC	EPA 608	Aldrin
GC	EPA 608	alpha-BHC
GC	EPA 608	beta-BHC
GC	EPA 608	delta-BHC
GC	EPA 608	gamma-BHC (Lindane)
GC	EPA 608	DDD (4,4)
GC	EPA 608	DDE (4,4)
GC	EPA 608	DDT (4,4)
GC	EPA 608	Dieldrin
GC	EPA 608	Endosulfan I
GC	EPA 608	Endosulfan II
GC	EPA 608	Endosulfan sulfate
GC	EPA 608	Endrin
GC	EPA 608	Endrin Aldehyde
GC	EPA 608	Heptachlor
GC	EPA 608	Heptachlor epoxide
GC	EPA 608	Methoxychlor
GC	EPA 608	alpha-Chlordane
GC	EPA 608	gamma-Chlordane
GC	EPA 608	Endrin Ketone
GC	EPA 608	Toxaphene
GC	EPA 608	Technical Chlordane
GC	EPA 608	cis-Nonachlor
GC	EPA 608	DDD (2,4)
GC	EPA 608	DDE (2,4)
GC	EPA 608	DDT (2,4)
GC	EPA 608	Mirex
GC	EPA 608	Oxychlordane
GC	EPA 608	trans-Nonachlor
GC	EPA 608	PCB1016
GC	EPA 608	PCB1221

Non-Potable Water		
Technology	**Method**	**Analyte**
GC	EPA 608	PCB1232
GC	EPA 608	PCB1242
GC	EPA 608	PCB1248
GC	EPA 608	PCB1254
GC	EPA 608	PCB1260
GC	EPA 608	PCB1262
GC	EPA 608	PCB1268
GC-MS	EPA 624	Acrolein
GC-MS	EPA 624	Acrylonitrile
GC-MS	EPA 624	Benzene
GC-MS	EPA 624	Bromodichloromethane
GC-MS	EPA 624	Bromoform
GC-MS	EPA 624	Bromomethane
GC-MS	EPA 624	Carbon tetrachloride
GC-MS	EPA 624	Chlorobenzene
GC-MS	EPA 624	2-Chloroethyl vinyl ether
GC-MS	EPA 624	Chloroethane
GC-MS	EPA 624	Chloroform
GC-MS	EPA 624	Chloromethane
GC-MS	EPA 624	Dibromochloromethane
GC-MS	EPA 624	1,1-Dichloroethane
GC-MS	EPA 624	1,2-Dichloroethane
GC-MS	EPA 624	1,2-Dichlorobenzene
GC-MS	EPA 624	1,3-Dichlorobenzene
GC-MS	EPA 624	1,4-Dichlorobenzene
GC-MS	EPA 624	Dichlorodifluoromethane
GC-MS	EPA 624	1,1-Dichloroethene
GC-MS	EPA 624	cis-1,2-Dichloroethene
GC-MS	EPA 624	trans-1,2-Dichloroethene
GC-MS	EPA 624	1,2-Dichloropropane
GC-MS	EPA 624	cis-1,3-Dichloropropene
GC-MS	EPA 624	trans-1,3-Dichloropropene
GC-MS	EPA 624	Ethylbenzene
GC-MS	EPA 624	Methylene Chloride
GC-MS	EPA 624	tert-Butyl methyl ether
GC-MS	EPA 624	Styrene
GC-MS	EPA 624	1,1,2,2-Tetrachloroethane
GC-MS	EPA 624	Tetrachloroethene

ANSI-ASQ National Accreditation Board

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 624	Toluene
GC-MS	EPA 624	1,1,1-Trichloroethane
GC-MS	EPA 624	1,1,2-Trichloroethane
GC-MS	EPA 624	1,2,4-Trichlorobenzene
GC-MS	EPA 624	Trichloroethene
GC-MS	EPA 624	Trichlorofluoromethane
GC-MS	EPA 624	1,1,2-Trichloro1,2,2-trifluoroethane
GC-MS	EPA 624	Vinyl Chloride
GC-MS	EPA 624	m-Xylene & p-xylene
GC-MS	EPA 624	o-Xylene
GC-MS	EPA 625	Acenaphthene
GC-MS	EPA 625	Acenaphthylene
GC-MS	EPA 625	Aniline
GC-MS	EPA 625	Anthracene
GC-MS	EPA 625	Azobenzene
GC-MS	EPA 625	Benzidine
GC-MS	EPA 625	Benzo(a)anthracene
GC-MS	EPA 625	benzo(a)pyrene
GC-MS	EPA 625	Benzo(b)fluoranthene
GC-MS	EPA 625	Benzo(e)pyrene
GC-MS	EPA 625	Benzo(g,h,i)perylene
GC-MS	EPA 625	Benzo(k)fluoranthene
GC-MS	EPA 625	Benzoic Acid
GC-MS	EPA 625	Benzyl Alcohol
GC-MS	EPA 625	Biphenyl
GC-MS	EPA 625	bis(2-chloroethoxy)methane
GC-MS	EPA 625	bis(2-chloroethyl)ether
GC-MS	EPA 625	bis(2-chloroisopropyl)ether
GC-MS	EPA 625	bis(2-Ethylhexyl)adipate
GC-MS	EPA 625	bis(2-Ethylhexyl)phthalate
GC-MS	EPA 625	4-Bromophenyl-phenylether
GC-MS	EPA 625	Butylbenzylphthalate
GC-MS	EPA 625	Carbazole
GC-MS	EPA 625	4-Chloro-3-methylphenol
GC-MS	EPA 625	4-Chloroaniline
GC-MS	EPA 625	2-Chloronaphthalene
GC-MS	EPA 625	2-Chlorophenol

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 625	4-Chlorophenyl-phenylether
GC-MS	EPA 625	Chrysene
GC-MS	EPA 625	Dibenzo(a,h)anthracene
GC-MS	EPA 625	Dibenzofuran
GC-MS	EPA 625	1,2-Dichlorobenzene
GC-MS	EPA 625	1,3-Dichlorobenzene
GC-MS	EPA 625	1,4-Dichlorobenzene
GC-MS	EPA 625	3,3'-Dichlorobenzidine
GC-MS	EPA 625	2,4-Dichlorophenol
GC-MS	EPA 625	Diethylphthalate
GC-MS	EPA 625	2,6-Dimethylnaphthalene
GC-MS	EPA 625	2,4-Dimethylphenol
GC-MS	EPA 625	Dimethylphthalate
GC-MS	EPA 625	Di-n-butylphthalate
GC-MS	EPA 625	4,6-Dinitro-2-methylphenol
GC-MS	EPA 625	2,4-Dinitrophenol
GC-MS	EPA 625	2,4-Dinitrotoluene
GC-MS	EPA 625	2,6-Dinitrotoluene
GC-MS	EPA 625	Di-n-octylphthalate
GC-MS	EPA 625	1,2-Diphenylhydrazine
GC-MS	EPA 625	Fluoranthene
GC-MS	EPA 625	Fluorene
GC-MS	EPA 625	Hexachlorobenzene
GC-MS	EPA 625	Hexachlorobutadiene
GC-MS	EPA 625	Hexachlorocyclopentadiene
GC-MS	EPA 625	Hexachloroethane
GC-MS	EPA 625	Indeno(1,2,3-cd)pyrene
GC-MS	EPA 625	Isophorone
GC-MS	EPA 625	1-Methylnaphthalene
GC-MS	EPA 625	2-Methylnaphthalene
GC-MS	EPA 625	1-Methylphenanthrene
GC-MS	EPA 625	2-Methylphenol
GC-MS	EPA 625	4-Methylphenol
GC-MS	EPA 625	Naphthalene
GC-MS	EPA 625	2-Nitroaniline
GC-MS	EPA 625	3-Nitroaniline
GC-MS	EPA 625	4-Nitroaniline
GC-MS	EPA 625	Nitrobenzene

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 625	2-Nitrophenol
GC-MS	EPA 625	4-Nitrophenol
GC-MS	EPA 625	n-Nitrosodimethylamine
GC-MS	EPA 625	n-Nitroso-di-n-propylamine
GC-MS	EPA 625	n-Nitrosodiphenylamine
GC-MS	EPA 625	Pentachlorophenol
GC-MS	EPA 625	Perylene
GC-MS	EPA 625	Phenanthrene
GC-MS	EPA 625	Phenol
GC-MS	EPA 625	Pyrene
GC-MS	EPA 625	Pyridine
GC-MS	EPA 625	2,3,4,6-Tetrachlorophenol
GC-MS	EPA 625	1,2,4-Trichlorobenzene
GC-MS	EPA 625	2,3,4-Trichlorophenol
GC-MS	EPA 625	2,3,5-Trichlorophenol
GC-MS	EPA 625	2,4,5-Trichlorophenol
GC-MS	EPA 625	2,4,6-Trichlorophenol
GC-MS	EPA 625	2,3,5-Trimethylnaphthalene
Gravimetric	EPA 1664A / 1664 B	Oil & Grease
Pensky-Martens	EPA 1010 / 1010A	Ignitability
ICP	EPA 6010B / 6010C	Aluminum
ICP	EPA 6010B / 6010C	Antimony
ICP	EPA 6010B / 6010C	Arsenic
ICP	EPA 6010B / 6010C	Barium
ICP	EPA 6010B / 6010C	Beryllium
ICP	EPA 6010B / 6010C	Boron
ICP	EPA 6010B / 6010C	Cadmium
ICP	EPA 6010B / 6010C	Calcium
ICP	EPA 6010B / 6010C	Chromium
ICP	EPA 6010B / 6010C	Cobalt
ICP	EPA 6010B / 6010C	Copper
ICP	EPA 6010B / 6010C	Iron
ICP	EPA 6010B / 6010C	Lead
ICP	EPA 6010B / 6010C	Lithium
ICP	EPA 6010B / 6010C	Magnesium
ICP	EPA 6010B / 6010C	Manganese
ICP	EPA 6010B / 6010C	Molybdenum
ICP	EPA 6010B / 6010C	Nickel

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Non-Potable Water		
Technology	**Method**	**Analyte**
ICP	EPA 6010B / 6010C	Potassium
ICP	EPA 6010B / 6010C	Selenium
ICP	EPA 6010B / 6010C	Silver
ICP	EPA 6010B / 6010C	Sodium
ICP	EPA 6010B / 6010C	Strontium
ICP	EPA 6010B / 6010C	Thallium
ICP	EPA 6010B / 6010C	Tin
ICP	EPA 6010B / 6010C	Titanium
ICP	EPA 6010B / 6010C	Vanadium
ICP	EPA 6010B / 6010C	Zinc
ICP-MS	EPA 6020A	Aluminum
ICP-MS	EPA 6020A	Antimony
ICP-MS	EPA 6020A	Arsenic
ICP-MS	EPA 6020A	Barium
ICP-MS	EPA 6020A	Beryllium
ICP-MS	EPA 6020A	Boron
ICP-MS	EPA 6020A	Cadmium
ICP-MS	EPA 6020A	Calcium
ICP-MS	EPA 6020A	Chromium
ICP-MS	EPA 6020A	Cobalt
ICP-MS	EPA 6020A	Copper
ICP-MS	EPA 6020A	Iron
ICP-MS	EPA 6020A	Lead
ICP-MS	EPA 6020A	Magnesium
ICP-MS	EPA 6020A	Manganese
ICP-MS	EPA 6020A	Molybdenum
ICP-MS	EPA 6020A	Nickel
ICP-MS	EPA 6020A	Potassium
ICP-MS	EPA 6020A	Selenium
ICP-MS	EPA 6020A	Silver
ICP-MS	EPA 6020A	Sodium
ICP-MS	EPA 6020A	Strontium
ICP-MS	EPA 6020A	Thallium
ICP-MS	EPA 6020A	Tin
ICP-MS	EPA 6020A	Titanium
ICP-MS	EPA 6020A	Tungsten
ICP-MS	EPA 6020A	Uranium
ICP-MS	EPA 6020A	Vanadium

Non-Potable Water		
Technology	**Method**	**Analyte**
ICP-MS	EPA 6020A	Zinc
HPLC-MS	EPA 6850	Perchlorate
Spectrometric	EPA 7196A	Hex. Chromium
IC	EPA 7199	Hex. Chromium
Cold-Vapor	EPA 7470A	Mercury
GC	EPA 8015B / 8015C / 8015D	GRO
GC	EPA 8015B / 8015C / 8015D	DRO
GC	EPA 8015B / 8015C / 8015D	ORO
GC	EPA 8015B / 8015C	Diethylene Glycol
GC	EPA 8015B / 8015C	Ethanol
GC	EPA 8015B / 8015C	Ethylene Glycol
GC	EPA 8015B / 8015C	Isopropanol
GC	EPA 8015B / 8015C / 8015D	JP4
GC	EPA 8015B / 8015C	Methanol
GC	EPA 8015B / 8015C	Propylene Glycol
GC	EPA 8015B / 8015C / 8015D	JP5
GC	EPA 8015B / 8015C	Triethylene Glycol
GC	EPA 8081A / 8081B	Aldrin
GC	EPA 8081A / 8081B	alpha-BHC
GC	EPA 8081A / 8081B	beta-BHC
GC	EPA 8081A / 8081B	delta-BHC
GC	EPA 8081A / 8081B	gamma-BHC (Lindane)
GC	EPA 8081A / 8081B	DDD (4,4)
GC	EPA 8081A / 8081B	DDE (4,4)
GC	EPA 8081A / 8081B	DDT (4,4)
GC	EPA 8081A / 8081B	Dieldrin
GC	EPA 8081A / 8081B	Endosulfan I
GC	EPA 8081A / 8081B	Endosulfan II
GC	EPA 8081A / 8081B	Endosulfan sulfate
GC	EPA 8081A / 8081B	Endrin
GC	EPA 8081A / 8081B	Endrin Aldehyde
GC	EPA 8081A / 8081B	Heptachlor
GC	EPA 8081A / 8081B	Heptachlor epoxide
GC	EPA 8081A / 8081B	Methoxychlor
GC	EPA 8081A / 8081B	alpha-Chlordane
GC	EPA 8081A / 8081B	gamma-Chlordane
GC	EPA 8081A / 8081B	Endrin Ketone
GC	EPA 8081A / 8081B	Toxaphene

Non-Potable Water		
Technology	**Method**	**Analyte**
GC	EPA 8081A / 8081B	Technical Chlordane
GC	EPA 8081A / 8081B	cis-Nonachlor
GC	EPA 8081A / 8081B	DDD (2,4)
GC	EPA 8081A / 8081B	DDE (2,4)
GC	EPA 8081A / 8081B	DDT (2,4)
GC	EPA 8081A / 8081B	Mirex
GC	EPA 8081A / 8081B	Oxychlordane
GC	EPA 8081A / 8081B	trans-Nonachlor
GC	EPA 8082 / 8082A	PCB1016
GC	EPA 8082 / 8082A	PCB1221
GC	EPA 8082 / 8082A	PCB1232
GC	EPA 8082 / 8082A	PCB1242
GC	EPA 8082 / 8082A	PCB1248
GC	EPA 8082 / 8082A	PCB1254
GC	EPA 8082 / 8082A	PCB1260
GC	EPA 8082 / 8082A	PCB1262
GC	EPA 8082 / 8082A	PCB1268
GC	EPA 8082 / 8082A	PCB 8
GC	EPA 8082 / 8082A	PCB 18
GC	EPA 8082 / 8082A	PCB 28
GC	EPA 8082 / 8082A	PCB 44
GC	EPA 8082 / 8082A	PCB 52
GC	EPA 8082 / 8082A	PCB 66
GC	EPA 8082 / 8082A	PCB 77
GC	EPA 8082 / 8082A	PCB 81
GC	EPA 8082 / 8082A	PCB 101
GC	EPA 8082 / 8082A	PCB 105
GC	EPA 8082 / 8082A	PCB 114
GC	EPA 8082 / 8082A	PCB 118
GC	EPA 8082 / 8082A	PCB 123
GC	EPA 8082 / 8082A	PCB 126
GC	EPA 8082 / 8082A	PCB 128
GC	EPA 8082 / 8082A	PCB 138
GC	EPA 8082 / 8082A	PCB 153
GC	EPA 8082 / 8082A	PCB 156
GC	EPA 8082 / 8082A	PCB 157
GC	EPA 8082 / 8082A	PCB 167
GC	EPA 8082 / 8082A	PCB 169

Non-Potable Water		
Technology	**Method**	**Analyte**
GC	EPA 8082 / 8082A	PCB 170
GC	EPA 8082 / 8082A	PCB 180
GC	EPA 8082 / 8082A	PCB 187
GC	EPA 8082 / 8082A	PCB 189
GC	EPA 8082 / 8082A	PCB 195
GC	EPA 8082 / 8082A	PCB 206
GC	EPA 8082 / 8082A	PCB 209
GC	EPA 8082 / 8082A	PCB 110
GC	EPA 8141A / 8141B	Azinphos-methyl
GC	EPA 8141A / 8141B	Bolstar
GC	EPA 8141A / 8141B	Chlorpyrifos
GC	EPA 8141A / 8141B	Coumaphos
GC	EPA 8141A / 8141B	Total Demeton
GC	EPA 8141A / 8141B	Diazinon
GC	EPA 8141A / 8141B	Dichlorvos
GC	EPA 8141A / 8141B	Disulfoton
GC	EPA 8141A / 8141B	Ethoprop
GC	EPA 8141A / 8141B	Fensulfothion
GC	EPA 8141A / 8141B	Fenthion
GC	EPA 8141A / 8141B	Merphos
GC	EPA 8141A / 8141B	Mevinphos
GC	EPA 8141A / 8141B	Naled
GC	EPA 8141A / 8141B	Methyl Parathion
GC	EPA 8141A / 8141B	Phorate
GC	EPA 8141A / 8141B	Ronnel
GC	EPA 8141A / 8141B	Stirophos
GC	EPA 8141A / 8141B	Tokuthion
GC	EPA 8141A / 8141B	Trichloronate
GC	EPA 8141A / 8141B	Dimethoate
GC	EPA 8141A / 8141B	EPN
GC	EPA 8141A / 8141B	Famphur
GC	EPA 8141A / 8141B	Malathion
GC	EPA 8141A / 8141B	Ethyl Parathion
GC	EPA 8141A / 8141B	O,O,O-Triethylphosphorothioate
GC	EPA 8141A / 8141B	Sulfotepp
GC	EPA 8141A / 8141B	Thionazin
GC	EPA 8141A / 8141B	Tributyl Phosphate
GC	EPA 8151A	Acifluorfen

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC	EPA 8151A	Bentazon
GC	EPA 8151A	Chloramben
GC	EPA 8151A	2,4-D
GC	EPA 8151A	2,4-DB
GC	EPA 8151A	Dacthal
GC	EPA 8151A	Dalapon
GC	EPA 8151A	Dicamba
GC	EPA 8151A	3,5-Dichlorobenzoic acid
GC	EPA 8151A	Dichlorprop
GC	EPA 8151A	Dinoseb
GC	EPA 8151A	MCPA
GC	EPA 8151A	MCPP
GC	EPA 8151A	4-Nitrophenol
GC	EPA 8151A	Pentachlorophenol
GC	EPA 8151A	Picloram
GC	EPA 8151A	Silvex
GC	EPA 8151A	2,4,5-T
GC-MS	EPA 8260B / 8260C	Acetone
GC-MS	EPA 8260B / 8260C	Acetonitrile
GC-MS	EPA 8260B / 8260C	Acrolein
GC-MS	EPA 8260B / 8260C	Acrylonitrile
GC-MS	EPA 8260B / 8260C	Benzene
GC-MS	EPA 8260B / 8260C	Bromobenzene
GC-MS	EPA 8260B / 8260C	Bromochloromethane
GC-MS	EPA 8260B / 8260C	Bromodichloromethane
GC-MS	EPA 8260B / 8260C	Bromoform
GC-MS	EPA 8260B / 8260C	Bromomethane
GC-MS	EPA 8260B / 8260C	tert-Butyl alcohol
GC-MS	EPA 8260B / 8260C	2-Butanone (MEK)
GC-MS	EPA 8260B / 8260C	n-Butylbenzene
GC-MS	EPA 8260B / 8260C	sec-Butylbenzene
GC-MS	EPA 8260B / 8260C	tert-Butylbenzene
GC-MS	EPA 8260B / 8260C	Carbon disulfide
GC-MS	EPA 8260B / 8260C	Carbon tetrachloride
GC-MS	EPA 8260B / 8260C	Chlorobenzene
GC-MS	EPA 8260B / 8260C	2-Chloroethyl vinyl ether
GC-MS	EPA 8260B / 8260C	Chloroethane
GC-MS	EPA 8260B / 8260C	Chloroform

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	1-Chlorohexane
GC-MS	EPA 8260B / 8260C	Chloromethane
GC-MS	EPA 8260B / 8260C	2-Chlorotoluene
GC-MS	EPA 8260B / 8260C	4-Chlorotoluene
GC-MS	EPA 8260B / 8260C	Isopropyl ether (DIPE)
GC-MS	EPA 8260B / 8260C	Dibromochloromethane
GC-MS	EPA 8260B / 8260C	1,2-Dibromo-3-chloropropane
GC-MS	EPA 8260B / 8260C	1,2-Dibromoethane
GC-MS	EPA 8260B / 8260C	Dibromomethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloroethane
GC-MS	EPA 8260B / 8260C	1,2-Dichloroethane
GC-MS	EPA 8260B / 8260C	1,2-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	1,3-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	trans-1,4-Dichloro-2-Butene
GC-MS	EPA 8260B / 8260C	1,4-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	Dichlorodifluoromethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloroethene
GC-MS	EPA 8260B / 8260C	cis-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C	trans-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C	Dichlorofluoromethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloropropene
GC-MS	EPA 8260B / 8260C	1,2-Dichloropropane
GC-MS	EPA 8260B / 8260C	1,3-Dichloropropane
GC-MS	EPA 8260B / 8260C	2,2-Dichloropropane
GC-MS	EPA 8260B / 8260C	cis-1,3-Dichloropropene
GC-MS	EPA 8260B / 8260C	trans-1,3-Dichloropropene
GC-MS	EPA 8260B / 8260C	tert-Butyl ethyl ether (ETBE)
GC-MS	EPA 8260B / 8260C	Ethyl Methacrylate
GC-MS	EPA 8260B / 8260C	Ethylbenzene
GC-MS	EPA 8260B / 8260C	2-Hexanone (MBK)
GC-MS	EPA 8260B / 8260C	Hexachlorobutadiene
GC-MS	EPA 8260B / 8260C	Iodomethane
GC-MS	EPA 8260B / 8260C	Isopropylbenzene
GC-MS	EPA 8260B / 8260C	p-Isopropyltoluene
GC-MS	EPA 8260B / 8260C	Methylene Chloride
GC-MS	EPA 8260B / 8260C	4-Methyl-2-pentanone (MIBK)
GC-MS	EPA 8260B / 8260C	tert-Butyl methyl ether
GC-MS	EPA 8260B / 8260C	Naphthalene

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	n-Propylbenzene
GC-MS	EPA 8260B / 8260C	Styrene
GC-MS	EPA 8260B / 8260C	tert-Amyl methyl ether (TAME)
GC-MS	EPA 8260B / 8260C	1,1,1,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C	1,1,2,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C	Tetrachloroethene
GC-MS	EPA 8260B / 8260C	Toluene
GC-MS	EPA 8260B / 8260C	1,1,1-Trichloroethane
GC-MS	EPA 8260B / 8260C	1,1,2-Trichloroethane
GC-MS	EPA 8260B / 8260C	1,2,3-Trichlorobenzene
GC-MS	EPA 8260B / 8260C	1,2,4-Trichlorobenzene
GC-MS	EPA 8260B / 8260C	Trichloroethene
GC-MS	EPA 8260B / 8260C	Trichlorofluoromethane
GC-MS	EPA 8260B / 8260C	1,2,3-Trichloropropane
GC-MS	EPA 8260B / 8260C	1,1,2-Trichloro1,2,2-trifluoroethane
GC-MS	EPA 8260B / 8260C	1,2,4-Trimethylbenzene
GC-MS	EPA 8260B / 8260C	1,3,5-Trimethylbenzene
GC-MS	EPA 8260B / 8260C	Vinyl Acetate
GC-MS	EPA 8260B / 8260C	Vinyl Chloride
GC-MS	EPA 8260B / 8260C	m-Xylene & p-xylene
GC-MS	EPA 8260B / 8260C	o-Xylene
GC-MS	EPA 8260B / 8260C	Allyl Chloride
GC-MS	EPA 8260B / 8260C	Benzyl chloride
GC-MS	EPA 8260B / 8260C	Chloroprene
GC-MS	EPA 8260B / 8260C	Cyclohexane
GC-MS	EPA 8260B / 8260C	1,4-Dioxane
GC-MS	EPA 8260B / 8260C	2-Chloro-1,1,1-trifluoroethane
GC-MS	EPA 8260B / 8260C	Chlorotrifluoroethylene
GC-MS	EPA 8260B / 8260C	cis-1,4-Dichloro-2-butene
GC-MS	EPA 8260B / 8260C	Ethanol
GC-MS	EPA 8260B / 8260C	Ethyl Methacrylate
GC-MS	EPA 8260B / 8260C	Isobutyl Alcohol
GC-MS	EPA 8260B / 8260C	Methacrylonitrile
GC-MS	EPA 8260B / 8260C	Methyl Methacrylate
GC-MS	EPA 8260B / 8260C	Pentachloroethane
GC-MS	EPA 8260B / 8260C	Propionitrile
GC-MS	EPA 8260B / 8260C	Sec-Propyl alcohol

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	Tetrahydrofuran
GC-MS	EPA 8260B / 8260C	trans-1,4-Dichloro-2-butene
GC-MS	EPA 8260B / 8260C SIM	Benzene
GC-MS	EPA 8260B / 8260C SIM	Carbon tetrachloride
GC-MS	EPA 8260B / 8260C SIM	Chloroform
GC-MS	EPA 8260B / 8260C SIM	Chloromethane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dibromo-3-chloropropane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dibromoethane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dichloroethane
GC-MS	EPA 8260B / 8260C SIM	1,1-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	cis-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	trans-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	1,1,2,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C SIM	Tetrachloroethene
GC-MS	EPA 8260B / 8260C SIM	1,1,1-Trichloroethane
GC-MS	EPA 8260B / 8260C SIM	1,1,2-Trichloroethane
GC-MS	EPA 8260B / 8260C SIM	Trichloroethene
GC-MS	EPA 8260B / 8260C SIM	1,2,3-Trichloropropane
GC-MS	EPA 8260B / 8260C SIM	Vinyl Chloride
GC-MS	EPA 8260B / 8260C SIM	1,4-Dioxane
GC-MS	EPA 8270C / 8270D	Acenaphthene
GC-MS	EPA 8270C / 8270D	Acenaphthylene
GC-MS	EPA 8270C / 8270D	Aniline
GC-MS	EPA 8270C / 8270D	Anthracene
GC-MS	EPA 8270C / 8270D	Azobenzene
GC-MS	EPA 8270C / 8270D	Benzidine
GC-MS	EPA 8270C / 8270D	Benzo(a)anthracene
GC-MS	EPA 8270C / 8270D	benzo(a)pyrene
GC-MS	EPA 8270C / 8270D	Benzo(b)fluoranthene
GC-MS	EPA 8270C / 8270D	Benzo(e)pyrene
GC-MS	EPA 8270C / 8270D	Benzo(g,h,i)perylene
GC-MS	EPA 8270C / 8270D	Benzo(k)fluoranthene
GC-MS	EPA 8270C / 8270D	Benzoic Acid
GC-MS	EPA 8270C / 8270D	Benzyl Alcohol
GC-MS	EPA 8270C / 8270D	Biphenyl
GC-MS	EPA 8270C / 8270D	bis(2-chloroethoxy)methane
GC-MS	EPA 8270C / 8270D	bis(2-chloroethyl)ether
GC-MS	EPA 8270C / 8270D	bis(2-chloroisopropyl)ether

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	bis(2-Ethylhexyl)adipate
GC-MS	EPA 8270C / 8270D	bis(2-Ethylhexyl)phthalate
GC-MS	EPA 8270C / 8270D	4-Bromophenyl-phenylether
GC-MS	EPA 8270C / 8270D	Butylbenzylphthalate
GC-MS	EPA 8270C / 8270D	Carbazole
GC-MS	EPA 8270C / 8270D	4-Chloro-3-methylphenol
GC-MS	EPA 8270C / 8270D	4-Chloroaniline
GC-MS	EPA 8270C / 8270D	2-Chloronaphthalene
GC-MS	EPA 8270C / 8270D	2-Chlorophenol
GC-MS	EPA 8270C / 8270D	4-Chlorophenyl-phenylether
GC-MS	EPA 8270C / 8270D	Chrysene
GC-MS	EPA 8270C / 8270D	Dibenzo(a,h)anthracene
GC-MS	EPA 8270C / 8270D	Dibenzofuran
GC-MS	EPA 8270C / 8270D	1,2-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	1,3-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	1,4-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	3,3'-Dichlorobenzidine
GC-MS	EPA 8270C / 8270D	2,4-Dichlorophenol
GC-MS	EPA 8270C / 8270D	Diethylphthalate
GC-MS	EPA 8270C / 8270D	2,6-Dimethylnaphthalene
GC-MS	EPA 8270C / 8270D	2,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D	Dimethylphthalate
GC-MS	EPA 8270C / 8270D	Di-n-butylphthalate
GC-MS	EPA 8270C / 8270D	4,6-Dinitro-2-methylphenol
GC-MS	EPA 8270C / 8270D	2,4-Dinitrophenol
GC-MS	EPA 8270C / 8270D	2,4-Dinitrotoluene
GC-MS	EPA 8270C / 8270D	2,6-Dinitrotoluene
GC-MS	EPA 8270C / 8270D	Di-n-octylphthalate
GC-MS	EPA 8270C / 8270D	Fluoranthene
GC-MS	EPA 8270C / 8270D	Fluorene
GC-MS	EPA 8270C / 8270D	Hexachlorobenzene
GC-MS	EPA 8270C / 8270D	Hexachlorobutadiene
GC-MS	EPA 8270C / 8270D	Hexachlorocyclopentadiene
GC-MS	EPA 8270C / 8270D	Hexachloroethane
GC-MS	EPA 8270C / 8270D	Indeno(1,2,3-cd)pyrene
GC-MS	EPA 8270C / 8270D	Isophorone
GC-MS	EPA 8270C / 8270D	1-Methylnaphthalene
GC-MS	EPA 8270C / 8270D	2-Methylnaphthalene

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	1-Methylphenanthrene
GC-MS	EPA 8270C / 8270D	2-Methylphenol
GC-MS	EPA 8270C / 8270D	3/4-Methylphenol
GC-MS	EPA 8270C / 8270D	Naphthalene
GC-MS	EPA 8270C / 8270D	2-Nitroaniline
GC-MS	EPA 8270C / 8270D	3-Nitroaniline
GC-MS	EPA 8270C / 8270D	4-Nitroaniline
GC-MS	EPA 8270C / 8270D	Nitrobenzene
GC-MS	EPA 8270C / 8270D	2-Nitrophenol
GC-MS	EPA 8270C / 8270D	4-Nitrophenol
GC-MS	EPA 8270C / 8270D	n-Nitrosodimethylamine
GC-MS	EPA 8270C / 8270D	n-Nitroso-di-n-propylamine
GC-MS	EPA 8270C / 8270D	n-Nitrosodiphenylamine
GC-MS	EPA 8270C / 8270D	Pentachlorophenol
GC-MS	EPA 8270C / 8270D	Perylene
GC-MS	EPA 8270C / 8270D	Phenanthrene
GC-MS	EPA 8270C / 8270D	Phenol
GC-MS	EPA 8270C / 8270D	Pyrene
GC-MS	EPA 8270C / 8270D	Pyridine
GC-MS	EPA 8270C / 8270D	2,3,4,6-Tetrachlorophenol
GC-MS	EPA 8270C / 8270D	1,2,4-Trichlorobenzene
GC-MS	EPA 8270C / 8270D	2,3,4-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,3,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,4,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,4,6-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,3,5-Trimethylnaphthalene
GC-MS	EPA 8270C / 8270D	1,2,4,5-Tetrachlorobenzene
GC-MS	EPA 8270C / 8270D	1,3,5-Trinitrobenzene
GC-MS	EPA 8270C / 8270D	1,3-Dinitrobenzene
GC-MS	EPA 8270C / 8270D	1,4-Dioxane
GC-MS	EPA 8270C / 8270D	1,4-Naphthoquinone
GC-MS	EPA 8270C / 8270D	1-Chloronaphthalene
GC-MS	EPA 8270C / 8270D	1-Naphthylamine
GC-MS	EPA 8270C / 8270D	2,6-Dichlorophenol
GC-MS	EPA 8270C / 8270D	2-acetylaminofluorene
GC-MS	EPA 8270C / 8270D	2-Naphthylamine
GC-MS	EPA 8270C / 8270D	2-Picoline
GC-MS	EPA 8270C / 8270D	3,3-Dimethylbenzidine

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	3,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D	3,5-Dimethylphenol
GC-MS	EPA 8270C / 8270D	3-Methylchlolanthrene
GC-MS	EPA 8270C / 8270D	4-Aminobiphenyl
GC-MS	EPA 8270C / 8270D	4-Nitroquinoline-N-oxide
GC-MS	EPA 8270C / 8270D	5-Nitro-o-toluidine
GC-MS	EPA 8270C / 8270D	7,12-Dimethylbenz(a)anthracene
GC-MS	EPA 8270C / 8270D	a,a-dimethylphenethylamine
GC-MS	EPA 8270C / 8270D	Acetophenone
GC-MS	EPA 8270C / 8270D	Aramite
GC-MS	EPA 8270C / 8270D	Atrazine
GC-MS	EPA 8270C / 8270D	Biphenyl
GC-MS	EPA 8270C / 8270D	Chlorobenzilate
GC-MS	EPA 8270C / 8270D	Diallate
GC-MS	EPA 8270C / 8270D	Dibenzo(a,j)acridine
GC-MS	EPA 8270C / 8270D	Dimethoate
GC-MS	EPA 8270C / 8270D	Dinoseb
GC-MS	EPA 8270C / 8270D	Diphenyl ether
GC-MS	EPA 8270C / 8270D	Disulfoton
GC-MS	EPA 8270C / 8270D	Ethyl methacrylate
GC-MS	EPA 8270C / 8270D	Ethyl methanesulfonate
GC-MS	EPA 8270C / 8270D	Ethyl parathion
GC-MS	EPA 8270C / 8270D	Famphur
GC-MS	EPA 8270C / 8270D	Hexachlorophene
GC-MS	EPA 8270C / 8270D	Hexachloropropene
GC-MS	EPA 8270C / 8270D	Isodrin
GC-MS	EPA 8270C / 8270D	Isosafrole
GC-MS	EPA 8270C / 8270D	kepone
GC-MS	EPA 8270C / 8270D	Methapyrilene
GC-MS	EPA 8270C / 8270D	Methyl methanesulfonate
GC-MS	EPA 8270C / 8270D	Methyl parathion
GC-MS	EPA 8270C / 8270D	N-nitrosodiethylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosodi-n-butylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosomethylethylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosomorpholine
GC-MS	EPA 8270C / 8270D	N-Nitrosopiperdine
GC-MS	EPA 8270C / 8270D	N-Nitrosopyrrolidine
GC-MS	EPA 8270C / 8270D	O,O,O-triethyl phosphorothi

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	o-toluidine
GC-MS	EPA 8270C / 8270D	p-Dimethylaminoazobenze
GC-MS	EPA 8270C / 8270D	Pentachlorobenzene
GC-MS	EPA 8270C / 8270D	Pentachloroethane
GC-MS	EPA 8270C / 8270D	Pentachloronitrobenzene
GC-MS	EPA 8270C / 8270D	Phenacetin
GC-MS	EPA 8270C / 8270D	Phorate
GC-MS	EPA 8270C / 8270D	p-phenylenediamine
GC-MS	EPA 8270C / 8270D	Pronamide
GC-MS	EPA 8270C / 8270D	Safrole
GC-MS	EPA 8270C / 8270D	Sulfotepp
GC-MS	EPA 8270C / 8270D	Thionazin
GC-MS	EPA 8270C / 8270D SIM	Acenaphthene
GC-MS	EPA 8270C / 8270D SIM	Acenaphthylene
GC-MS	EPA 8270C / 8270D SIM	Anthracene
GC-MS	EPA 8270C / 8270D SIM	Azobenzene
GC-MS	EPA 8270C / 8270D SIM	Benzo(a)anthracene
GC-MS	EPA 8270C / 8270D SIM	benzo(a)pyrene
GC-MS	EPA 8270C / 8270D SIM	Benzo(b)fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Benzo(e)pyrene
GC-MS	EPA 8270C / 8270D SIM	Benzo(g,h,i)perylene
GC-MS	EPA 8270C / 8270D SIM	Benzo(k)fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Biphenyl
GC-MS	EPA 8270C / 8270D SIM	bis(2-chloroethyl)ether
GC-MS	EPA 8270C / 8270D SIM	bis(2-Ethylhexyl)phthalate
GC-MS	EPA 8270C / 8270D SIM	Carbazole
GC-MS	EPA 8270C / 8270D SIM	4-Chloro-3-methylphenol
GC-MS	EPA 8270C / 8270D SIM	2-Chlorophenol
GC-MS	EPA 8270C / 8270D SIM	Chrysene
GC-MS	EPA 8270C / 8270D SIM	Dibenzo(a,h)anthracene
GC-MS	EPA 8270C / 8270D SIM	2,4-Dichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,6-Dimethylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	2,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D SIM	Fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Fluorene
GC-MS	EPA 8270C / 8270D SIM	Hexachlorobenzene
GC-MS	EPA 8270C / 8270D SIM	Indeno(1,2,3-cd)pyrene
GC-MS	EPA 8270C / 8270D SIM	1-Methylnaphthalene

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D SIM	2-Methylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	1-Methylphenanthrene
GC-MS	EPA 8270C / 8270D SIM	Naphthalene
GC-MS	EPA 8270C / 8270D SIM	n-Nitrosodimethylamine
GC-MS	EPA 8270C / 8270D SIM	n-Nitroso-di-n-propylamine
GC-MS	EPA 8270C / 8270D SIM	Pentachlorophenol
GC-MS	EPA 8270C / 8270D SIM	Perylene
GC-MS	EPA 8270C / 8270D SIM	Phenanthrene
GC-MS	EPA 8270C / 8270D SIM	Phenol
GC-MS	EPA 8270C / 8270D SIM	Pyrene
GC-MS	EPA 8270C / 8270D SIM	2,4,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,4,6-Trichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,3,5-Trimethylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	1,4-Dioxane
GC-MS	EPA 8270C / 8270D SIM	Butylbenzylphthalate
GC-MS	EPA 8270C / 8270D SIM	Diethylphthalate
GC-MS	EPA 8270C / 8270D SIM	Dimethylphthalate
GC-MS	EPA 8270C / 8270D SIM	Di-n-butylphthalate
GC-MS	EPA 8270C / 8270D SIM	Di-n-octylphthalate
HPLC	EPA 8310	Acenaphthene
HPLC	EPA 8310	Acenaphthylene
HPLC	EPA 8310	Anthracene
HPLC	EPA 8310	Benzo(a)anthracene
HPLC	EPA 8310	Benzo(a)pyrene
HPLC	EPA 8310	Benzo(b)fluoranthene
HPLC	EPA 8310	Benzo(g,h,i)perylene
HPLC	EPA 8310	Benzo(k)fluoranthene
HPLC	EPA 8310	Chrysene
HPLC	EPA 8310	Dibenzo(a,h)anthracene
HPLC	EPA 8310	Fluoranthene
HPLC	EPA 8310	Fluorene
HPLC	EPA 8310	Indeno(1,2,3-cd)pyrene
HPLC	EPA 8310	1-Methylnaphthalene
HPLC	EPA 8310	2-Methylnaphthalene
HPLC	EPA 8310	Naphthalene
HPLC	EPA 8310	Phenanthrene
HPLC	EPA 8310	Pyrene
HPLC	EPA 8330A / 8330 B	HMX

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Non-Potable Water		
Technology	**Method**	**Analyte**
HPLC	EPA 8330A / 8330 B	RDX
HPLC	EPA 8330A / 8330 B	1,3,5-TNB
HPLC	EPA 8330A / 8330 B	1,3-DNB
HPLC	EPA 8330A / 8330 B	Tetryl
HPLC	EPA 8330A / 8330 B	Nitrobenzene
HPLC	EPA 8330A / 8330 B	2,4,6-TNT
HPLC	EPA 8330A / 8330 B	4-AM-2,6-DNT
HPLC	EPA 8330A / 8330 B	2-AM-4,6-DNT
HPLC	EPA 8330A / 8330 B	2,6-DNT
HPLC	EPA 8330A / 8330 B	2,4-DNT
HPLC	EPA 8330A / 8330 B	2-Nitrotoluene
HPLC	EPA 8330A / 8330 B	4-Nitrotoluene
HPLC	EPA 8330A / 8330 B	3-Nitrotoluene
HPLC	EPA 8330A	3,5-Dinitroaniline
HPLC	EPA 8330A	2,4-Diamino-6-nitrotoluene
HPLC	EPA 8330A	2,6-Diamino-4-nitrotoluene
HPLC	EPA 8330A	Picric Acid
HPLC	EPA 8332	Nitroglycerine
HPLC	EPA 8332	PETN
Spectrometric	EPA 9014	Cyanide
Electrode	EPA 9040B / 9040C	pH
IC	EPA 9056 / 9056A	Bromate
IC	EPA 9056 / 9056A	Bromide
IC	EPA 9056 / 9056A	Chloride
IC	EPA 9056 / 9056A	Fluoride
IC	EPA 9056 / 9056A	Nitrate
IC	EPA 9056 / 9056A	Nitrite
IC	EPA 9056 / 9056A	Phosphate
IC	EPA 9056 / 9056A	Sulfate
IC	EPA 9056 / 9056A	Chlorate
IC	EPA 9056 / 9056A	Nitrate - Nitrite
Combustion-IR	EPA 9060A	TOC
Spectrometric	EPA 9065	Phenols
Gravimetric	EPA 9070A	Oil & Grease
GC	RSK175	Methane
GC	RSK175	Acetylene
GC	RSK175	Ethylene
GC	RSK175	Ethane

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Non-Potable Water		
Technology	**Method**	**Analyte**
GC	RSK175	Propane
GC	RSK175	Carbon dioxide
Spectrometric	SM 4500-NH3C (18th)	Ammonia
Spectrometric	SM 4500-NH3F	Ammonia
Spectrometric	SM 4500-NOrgC NH3F	TKN
Spectrometric	SM 4500-PE	Phosphorus
Turbidimetric	SM 2130B	Turbidity
Titrimetric	SM 2310B	Acidity
Titrimetric	SM 2320B	Alkalinity
Titrimetric	SM 2340C	Hardness
Platinum Electrode	SM 2510B	Specific Conductance
Electrical Conductivity	SM 2520B	Salinity
Gravimetric	SM 2540C	TDS
Gravimetric	SM 2540D	TSS
Gravimetric	SM 2540B	Total Residue
Gravimetric	SM 2540F	Settleable Residue
Spectrometric	SM 3500-FeB	Ferrous iron
IC	SM 4110B	Bromate
IC	SM 4110B	Bromide
IC	SM 4110B	Chloride
IC	SM 4110B	Fluoride
IC	SM 4110B	Nitrate
IC	SM 4110B	Nitrite
IC	SM 4110B	Phosphate
IC	SM 4110B	Sulfate
IC	SM 4110B	Chlorate
IC	SM 4110B	Nitrate – Nitrite
Titrimetric	SM 4500-Cl-B	Chloride
Titrimetric	SM 4500-Cl B	Total Residual Chlorine
Spectrometric	SM 4500-CN E	Cyanide
Electrode	SM 4500-FC	Fluoride
Electrode	SM 4500-HB	pH
Spectrometric	SM 4500-NO2B	Nitrite-N
Spectrometric	SM 4500-NO3E	Nitrate-N
Spectrometric	SM 4500-P E	Ortho-phosphate
Spectrometric	SM 4500-P E(PB5)	Phosphorus
Spectrometric	SM 4500-S2D	Sulfide
Titrimetric	SM 4500-S2F	Sulfide

Non-Potable Water		
Technology	**Method**	**Analyte**
Spectrometric	SM 4500-SiO2C	Silica
Electrode	SM 5210B	BOD
Spectrometric	SM 5220D	COD
Combustion-IR	SM 5310B	TOC
Spectrometric	SM 5540C	Surfactants (MBAS)
Distillation	EPA 9010C	Cyanide
MicroDistillation	QuickChem 10-204-00-1-X	Cyanide
ICP/ICP-MS	SM 2340B	Hardness
GC	EPA 8011	DBCP
GC	EPA 8011	EDB
Platinum Electrode	EPA 9050A	Specific Conductance
Gravimetric	SM 5520B	Oil & Grease
Preparation	**Method**	**Type**
Purge & Trap	EPA 5030B / 5030C	Volatiles Prep
Acid Digestion	EPA 3005A / EPA 3010A / EPA 200.8 / EPA 200.7	Metals Prep
Continuous Liquid-Liquid	EPA 3520C	Organic Extraction
Waste Dilution	EPA 3580A	Organic Extraction
TCLP	EPA 1311	Leaching
SPLP	EPA 1312	Leaching

Drinking Water		
Technology	**Method**	**Analyte**
Colorimetric	EPA 110.2	Color
Platinum Electrode	EPA 120.1	Specific Conductance
Electrode	EPA 150.1	pH
Gravimetric	EPA 160.1	TDS
Gravimetric	EPA 160.2	TSS
Gravimetric	EPA 160.3	Total Residue
Turbidimetric	SM 2130B	Turbidity
ICP-MS	EPA 200.8	Aluminum
ICP-MS	EPA 200.8	Antimony
ICP-MS	EPA 200.8	Arsenic
ICP-MS	EPA 200.8	Barium
ICP-MS	EPA 200.8	Beryllium
ICP-MS	EPA 200.8	Boron

Drinking Water		
Technology	**Method**	**Analyte**
ICP-MS	EPA 200.8	Cadmium
ICP-MS	EPA 200.8	Calcium
ICP-MS	EPA 200.8	Chromium
ICP-MS	EPA 200.8	Cobalt
ICP-MS	EPA 200.8	Copper
ICP-MS	EPA 200.8	Iron
ICP-MS	EPA 200.8	Lithium
ICP-MS	EPA 200.8	Lead
ICP-MS	EPA 200.8	Magnesium
ICP-MS	EPA 200.8	Manganese
ICP-MS	EPA 200.8	Molybdenum
ICP-MS	EPA 200.8	Nickel
ICP-MS	EPA 200.8	Potassium
ICP-MS	EPA 200.8	Selenium
ICP-MS	EPA 200.8	Silver
ICP-MS	EPA 200.8	Sodium
ICP-MS	EPA 200.8	Strontium
ICP-MS	EPA 200.8	Thallium
ICP-MS	EPA 200.8	Tin
ICP-MS	EPA 200.8	Titanium
ICP-MS	EPA 200.8	Uranium
ICP-MS	EPA 200.8	Vanadium
ICP-MS	EPA 200.8	Zinc
IC	EPA 218.6	Hexavalent Chromium
Cold Vapor	EPA 245.1	Mercury
IC	EPA 300.0	Bromate
IC	EPA 300.0	Bromide
IC	EPA 300.0	Chloride
IC	EPA 300.0	Fluoride
IC	EPA 300.0	Nitrate
IC	EPA 300.0	Nitrite
IC	EPA 300.0	Phosphate
IC	EPA 300.0	Sulfate
IC	EPA 300.0	Chlorate
IC	EPA 300.0	Nitrate - Nitrite
IC	EPA 300M	Acetate

Drinking Water		
Technology	**Method**	**Analyte**
IC	EPA 300M	Butyrate
IC	EPA 300M	Lactate
IC	EPA 300M	Propionate
IC	EPA 300M	Pyruvate
IC	EPA 314.0	Perchlorate
Spectrometric	EPA 335.2	Cyanide
Spectrometric	EPA 350.2	Ammonia
Spectrometric	EPA 351.3	TKN
Spectrometric	EPA 353.3	Nitrate-N
Spectrometric	EPA 354.1	Nitrite-N
Spectrometric	EPA 365.2	Ortho-phosphate
Spectrometric	EPA 365.2	Phosphorus
Spectrometric	EPA 370.1	Silica
Titrimetric	EPA 376.1	Sulfide
Spectrometric	EPA 376.2	Sulfide
Spectrometric	EPA 410.4	COD
Combustion-IR	EPA 415.1	TOC
Spectrometric	EPA 420.1	Phenols
Spectrometric	EPA 425.1	MBAS
GC	EPA 504.1	DBCP
GC	EPA 504.1	EDB
GC-MS	EPA 524.2	Acetone
GC-MS	EPA 524.2	Benzene
GC-MS	EPA 524.2	Bromobenzene
GC-MS	EPA 524.2	Bromochloromethane
GC-MS	EPA 524.2	Bromodichloromethane
GC-MS	EPA 524.2	Bromoform
GC-MS	EPA 524.2	Bromomethane
GC-MS	EPA 524.2	tert-Butyl alcohol
GC-MS	EPA 524.2	2-Butanone (MEK)
GC-MS	EPA 524.2	n-Butylbenzene
GC-MS	EPA 524.2	sec-Butylbenzene
GC-MS	EPA 524.2	tert-Butylbenzene
GC-MS	EPA 524.2	Carbon disulfide
GC-MS	EPA 524.2	Carbon tetrachloride
GC-MS	EPA 524.2	Chlorobenzene

Drinking Water		
Technology	**Method**	**Analyte**
GC-MS	EPA 524.2	Chloroethane
GC-MS	EPA 524.2	Chloroform
GC-MS	EPA 524.2	Chloromethane
GC-MS	EPA 524.2	2-Chlorotoluene
GC-MS	EPA 524.2	4-Chlorotoluene
GC-MS	EPA 524.2	Dibromochloromethane
GC-MS	EPA 524.2	1,2-Dibromo-3-chloropropane
GC-MS	EPA 524.2	1,2-Dibromoethane
GC-MS	EPA 524.2	Dibromomethane
GC-MS	EPA 524.2	1,1-Dichloroethane
GC-MS	EPA 524.2	1,2-Dichloroethane
GC-MS	EPA 524.2	1,2-Dichlorobenzene
GC-MS	EPA 524.2	1,3-Dichlorobenzene
GC-MS	EPA 524.2	1,4-Dichlorobenzene
GC-MS	EPA 524.2	Dichlorodifluoromethane
GC-MS	EPA 524.2	1,1-Dichloroethene
GC-MS	EPA 524.2	cis-1,2-Dichloroethene
GC-MS	EPA 524.2	trans-1,2-Dichloroethene
GC-MS	EPA 524.2	1,1-Dichloropropene
GC-MS	EPA 524.2	1,2-Dichloropropane
GC-MS	EPA 524.2	1,3-Dichloropropane
GC-MS	EPA 524.2	2,2-Dichloropropane
GC-MS	EPA 524.2	cis-1,3-Dichloropropene
GC-MS	EPA 524.2	trans-1,3-Dichloropropene
GC-MS	EPA 524.2	tert-Butyl ethyl ether (ETBE)
GC-MS	EPA 524.2	Ethylbenzene
GC-MS	EPA 524.2	2-Hexanone (MBK)
GC-MS	EPA 524.2	Hexachlorobutadiene
GC-MS	EPA 524.2	Isopropyl ether (DIPE)
GC-MS	EPA 524.2	Isopropylbenzene
GC-MS	EPA 524.2	p-Isopropyltoluene
GC-MS	EPA 524.2	Methylene Chloride
GC-MS	EPA 524.2	4-Methyl-2-pentanone (MIBK)
GC-MS	EPA 524.2	tert-Butyl methyl ether
GC-MS	EPA 524.2	Naphthalene
GC-MS	EPA 524.2	n-Propylbenzene

Drinking Water

Technology	Method	Analyte
GC-MS	EPA 524.2	Styrene
GC-MS	EPA 524.2	tert-Amyl methyl ether (TAME)
GC-MS	EPA 524.2	1,1,1,2-Tetrachloroethane
GC-MS	EPA 524.2	1,1,2,2-Tetrachloroethane
GC-MS	EPA 524.2	Tetrachloroethene
GC-MS	EPA 524.2	Toluene
GC-MS	EPA 524.2	1,1,1-Trichloroethane
GC-MS	EPA 524.2	1,1,2-Trichloroethane
GC-MS	EPA 524.2	1,2,3-Trichlorobenzene
GC-MS	EPA 524.2	1,2,4-Trichlorobenzene
GC-MS	EPA 524.2	Trichloroethene
GC-MS	EPA 524.2	Trichlorofluoromethane
GC-MS	EPA 524.2	1,2,3-Trichloropropane
GC-MS	EPA 524.2	1,1,2-Trichloro1,2,2-trifluoroethane
GC-MS	EPA 524.2	1,2,4-Trimethylbenzene
GC-MS	EPA 524.2	1,3,5-Trimethylbenzene
GC-MS	EPA 524.2	Vinyl Chloride
GC-MS	EPA 524.2	m-Xylene & p-xylene
GC-MS	EPA 524.2	o-Xylene
Titrimetric	SM 2320B	Alkalinity
HPLC-MS	EPA 6850	Perchlorate
Colorimetric	SM 2120B	Color
Threshold Odor Test	SM 2150B	Odor
Turbidimetric	SM 2130B	Turbidity
ICP/ICP-MS by Calculation	SM 2340B	Hardness
Titrimetric	SM 2340C	Hardness
Platinum Electrode	SM 2510B	Specific Conductance
Gravimetric	SM 2540B	Total Residue
Gravimetric	SM 2540C	TDS
Gravimetric	SM 2540D	TSS
Spectrometric	SM 3500-Fe B	Ferrous Iron
IC	SM 4110B	Bromate
IC	SM 4110B	Bromide
IC	SM 4110B	Chloride
IC	SM 4110B	Fluoride
IC	SM 4110B	Nitrate

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ANAB

Drinking Water		
Technology	**Method**	**Analyte**
IC	SM 4110B	Nitrite
IC	SM 4110B	Nitrate - Nitrite
IC	SM 4110B	Phosphate
IC	SM 4110B	Sulfate
IC	SM 4110B	Chlorate
Titrimetric	SM 4500-Cl B	Chloride
Spectrometric	SM 4500-CN E	Cyanide
Electrode	SM 4500-HB	pH
Spectrometric	SM 4500-NH3 C (18^{th})	Ammonia
Spectrometric	SM 4500-NH3 F	Ammonia
Spectrometric	SM 4500-NO2 B	Nitrite-N
Spectrometric	SM 4500-NO3 E	Nitrate-N
Spectrometric	SM 4500-NOrgC NH3F	TKN
Spectrometric	SM 4500-P E	Ortho-phosphate
Spectrometric	SM 4500-P E(PB5)	Phosphorus
Spectrometric	SM 4500-S2D	Sulfide
Titrimetric	SM 4500-S2 F	Sulfide
Spectrometric	SM 4500-SiO2 C	Silica
Spectrometric	SM 5220D	COD
Combustion-IR	SM 5310B	TOC
Spectrometric	SM 5540C	Surfactants
MicroDistillation	QuickChem 10-204-00-1-X	Cyanide

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC	AK101	GRO
GC	AK102	DRO
GC	AK103	RRO
GC	AZ8015	DRO (C10-C22)
GC	AZ8015	ORO (C22-C32)
GC	RSK175	Methane
GC	RSK175	Acetylene
GC	RSK175	Ethylene
GC	RSK175	Ethane
GC	RSK175	Propane

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC	RSK175	Carbon dioxide
Visual	s.7.3 SW-846	Reactive Cyanide
Visual	s.7.3 SW-846	Reactive Sulfide
Spectrometric	SM 4500-NH3 C (18th)	Ammonia
Spectrometric	SM 4500-NH3 F	Ammonia
Spectrometric	SM 4500-NOrgC NH3F	TKN
Spectrometric	SM 4500-NO2B	Nitrite-N
Spectrometric	SM 4500-NO3E	Nitrate-N
Spectrometric	SM 4500-P E	Ortho-phosphate
Spectrometric	SM 4500-P E(PB5)	Phosphorus
Titrimetric	Walkley Black	TOC
Electrode	EPA 9045C / 9045D	pH
Spectrometric	EPA 9065	Phenols
Pensky-Martens	EPA 1010/ 1010A	Ignitability
ICP	EPA 6010B / 6010C	Aluminum
ICP	EPA 6010B / 6010C	Antimony
ICP	EPA 6010B / 6010C	Arsenic
ICP	EPA 6010B / 6010C	Barium
ICP	EPA 6010B / 6010C	Beryllium
ICP	EPA 6010B / 6010C	Boron
ICP	EPA 6010B / 6010C	Cadmium
ICP	EPA 6010B / 6010C	Calcium
ICP	EPA 6010B / 6010C	Chromium
ICP	EPA 6010B / 6010C	Cobalt
ICP	EPA 6010B / 6010C	Copper
ICP	EPA 6010B / 6010C	Iron
ICP	EPA 6010B / 6010C	Lead
ICP	EPA 6010B / 6010C	Lithium
ICP	EPA 6010B / 6010C	Magnesium
ICP	EPA 6010B / 6010C	Manganese
ICP	EPA 6010B / 6010C	Molybdenum
ICP	EPA 6010B / 6010C	Nickel
ICP	EPA 6010B / 6010C	Potassium
ICP	EPA 6010B / 6010C	Selenium
ICP	EPA 6010B / 6010C	Silver
ICP	EPA 6010B / 6010C	Sodium
ICP	EPA 6010B / 6010C	Strontium
ICP	EPA 6010B / 6010C	Thallium

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
ICP	EPA 6010B / 6010C	Tin
ICP	EPA 6010B / 6010C	Titanium
ICP	EPA 6010B / 6010C	Vanadium
ICP	EPA 6010B / 6010C	Zinc
ICP-MS	EPA 6020A	Aluminum
ICP-MS	EPA 6020A	Antimony
ICP-MS	EPA 6020A	Arsenic
ICP-MS	EPA 6020A	Barium
ICP-MS	EPA 6020A	Beryllium
ICP-MS	EPA 6020A	Boron
ICP-MS	EPA 6020A	Cadmium
ICP-MS	EPA 6020A	Calcium
ICP-MS	EPA 6020A	Chromium
ICP-MS	EPA 6020A	Cobalt
ICP-MS	EPA 6020A	Copper
ICP-MS	EPA 6020A	Iron
ICP-MS	EPA 6020A	Lead
ICP-MS	EPA 6020A	Lithium
ICP-MS	EPA 6020A	Magnesium
ICP-MS	EPA 6020A	Manganese
ICP-MS	EPA 6020A	Molybdenum
ICP-MS	EPA 6020A	Nickel
ICP-MS	EPA 6020A	Potassium
ICP-MS	EPA 6020A	Selenium
ICP-MS	EPA 6020A	Silver
ICP-MS	EPA 6020A	Sodium
ICP-MS	EPA 6020A	Strontium
ICP-MS	EPA 6020A	Thallium
ICP-MS	EPA 6020A	Tin
ICP-MS	EPA 6020A	Titanium
ICP-MS	EPA 6020A	Tungsten
ICP-MS	EPA 6020A	Uranium
ICP-MS	EPA 6020A	Vanadium
ICP-MS	EPA 6020A	Zinc
HPLC-MS	EPA 6850	Perchlorate
Spectrometric	EPA 7196A	Hex. Chromium
IC	EPA 7199	Hex. Chromium
Cold-Vapor	EPA 7471A / 7471B	Mercury

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC	EPA 8011	DBCP
GC	EPA 8011	EDB
GC	EPA 8015B / 8015C / 8015D	GRO
GC	EPA 8015B / 8015C / 8015D	DRO
GC	EPA 8015B / 8015C / 8015D	ORO
GC	EPA 8015B / 8015C / 8015D	JP5
GC	EPA 8015B / 8015C	Ethanol
GC	EPA 8015B / 8015C	Isopropanol
GC	EPA 8015B / 8015C	Diethylene Glycol
GC	EPA 8015B / 8015C	Ethylene Glycol
GC	EPA 8015B / 8015C	Triethylene Glycol
GC	EPA 8015B / 8015C / 8015D	JP4
GC	EPA 8015B / 8015C	Methanol
GC	EPA 8015B / 8015C	Propylene Glycol
GC	EPA 8081A / 8081B	Aldrin
GC	EPA 8081A / 8081B	alpha-BHC
GC	EPA 8081A / 8081B	beta-BHC
GC	EPA 8081A / 8081B	delta-BHC
GC	EPA 8081A / 8081B	gamma-BHC (Lindane)
GC	EPA 8081A / 8081B	DDD (4,4)
GC	EPA 8081A / 8081B	DDE (4,4)
GC	EPA 8081A / 8081B	DDT (4,4)
GC	EPA 8081A / 8081B	Dieldrin
GC	EPA 8081A / 8081B	Endosulfan I
GC	EPA 8081A / 8081B	Endosulfan II
GC	EPA 8081A / 8081B	Endosulfan sulfate
GC	EPA 8081A / 8081B	Endrin
GC	EPA 8081A / 8081B	Endrin Aldehyde
GC	EPA 8081A / 8081B	Heptachlor
GC	EPA 8081A / 8081B	Heptachlor epoxide
GC	EPA 8081A / 8081B	Methoxychlor
GC	EPA 8081A / 8081B	alpha-Chlordane
GC	EPA 8081A / 8081B	gamma-Chlordane
GC	EPA 8081A / 8081B	Endrin Ketone
GC	EPA 8081A / 8081B	Toxaphene
GC	EPA 8081A / 8081B	Technical Chlordane
GC	EPA 8081A / 8081B	cis-Nonachlor
GC	EPA 8081A / 8081B	DDD (2,4)

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC	EPA 8081A / 8081B	DDE (2,4)
GC	EPA 8081A / 8081B	DDT (2,4)
GC	EPA 8081A / 8081B	Mirex
GC	EPA 8081A / 8081B	Oxychlordane
GC	EPA 8081A / 8081B	trans-Nonachlor
GC	EPA 8082 / 8082A	PCB1016
GC	EPA 8082 / 8082A	PCB1221
GC	EPA 8082 / 8082A	PCB1232
GC	EPA 8082 / 8082A	PCB1242
GC	EPA 8082 / 8082A	PCB1248
GC	EPA 8082 / 8082A	PCB1254
GC	EPA 8082 / 8082A	PCB1260
GC	EPA 8082 / 8082A	PCB1262
GC	EPA 8082 / 8082A	PCB1268
GC	EPA 8082 / 8082A	PCB 8
GC	EPA 8082 / 8082A	PCB 18
GC	EPA 8082 / 8082A	PCB 28
GC	EPA 8082 / 8082A	PCB 44
GC	EPA 8082 / 8082A	PCB 52
GC	EPA 8082 / 8082A	PCB 66
GC	EPA 8082 / 8082A	PCB 77
GC	EPA 8082 / 8082A	PCB 81
GC	EPA 8082 / 8082A	PCB 101
GC	EPA 8082 / 8082A	PCB 105
GC	EPA 8082 / 8082A	PCB 110
GC	EPA 8082 / 8082A	PCB 114
GC	EPA 8082 / 8082A	PCB 118
GC	EPA 8082 / 8082A	PCB 123
GC	EPA 8082 / 8082A	PCB 126
GC	EPA 8082 / 8082A	PCB 128
GC	EPA 8082 / 8082A	PCB 138
GC	EPA 8082 / 8082A	PCB 153
GC	EPA 8082 / 8082A	PCB 156
GC	EPA 8082 / 8082A	PCB 157
GC	EPA 8082 / 8082A	PCB 167
GC	EPA 8082 / 8082A	PCB 169
GC	EPA 8082 / 8082A	PCB 170
GC	EPA 8082 / 8082A	PCB 180

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC	EPA 8082 / 8082A	PCB 187
GC	EPA 8082 / 8082A	PCB 189
GC	EPA 8082 / 8082A	PCB 195
GC	EPA 8082 / 8082A	PCB 206
GC	EPA 8082 / 8082A	PCB 209
GC	EPA 8141A / 8141B	Azinphos-methyl
GC	EPA 8141A / 8141B	Bolstar
GC	EPA 8141A / 8141B	Chlorpyrifos
GC	EPA 8141A / 8141B	Coumaphos
GC	EPA 8141A / 8141B	Total Demeton
GC	EPA 8141A / 8141B	Diazinon
GC	EPA 8141A / 8141B	Dichlorvos
GC	EPA 8141A / 8141B	Disulfoton
GC	EPA 8141A / 8141B	Ethoprop
GC	EPA 8141A / 8141B	Fensulfothion
GC	EPA 8141A / 8141B	Fenthion
GC	EPA 8141A / 8141B	Merphos
GC	EPA 8141A / 8141B	Mevinphos
GC	EPA 8141A / 8141B	Naled
GC	EPA 8141A / 8141B	Methyl Parathion
GC	EPA 8141A / 8141B	Phorate
GC	EPA 8141A / 8141B	Ronnel
GC	EPA 8141A / 8141B	Stirophos
GC	EPA 8141A / 8141B	Tokuthion
GC	EPA 8141A / 8141B	Trichloronate
GC	EPA 8141A / 8141B	Dimethoate
GC	EPA 8141A / 8141B	EPN
GC	EPA 8141A / 8141B	Famphur
GC	EPA 8141A / 8141B	Malathion
GC	EPA 8141A / 8141B	Ethyl Parathion
GC	EPA 8141A / 8141B	O,O,O-Triethylphosphorothioate
GC	EPA 8141A / 8141B	Sulfotepp
GC	EPA 8141A / 8141B	Thionazin
GC	EPA 8141A / 8141B	Tributyl Phosphate
GC-MS	EPA 8260B / 8260C	Acetone
GC-MS	EPA 8260B / 8260C	Acrolein
GC-MS	EPA 8260B / 8260C	Acrylonitrile
GC-MS	EPA 8260B / 8260C	Benzene

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	Bromobenzene
GC-MS	EPA 8260B / 8260C	Bromochloromethane
GC-MS	EPA 8260B / 8260C	Bromodichloromethane
GC-MS	EPA 8260B / 8260C	Bromoform
GC-MS	EPA 8260B / 8260C	Bromomethane
GC-MS	EPA 8260B / 8260C	tert-Butyl alcohol
GC-MS	EPA 8260B / 8260C	2-Butanone (MEK)
GC-MS	EPA 8260B / 8260C	n-Butylbenzene
GC-MS	EPA 8260B / 8260C	sec-Butylbenzene
GC-MS	EPA 8260B / 8260C	tert-Butylbenzene
GC-MS	EPA 8260B / 8260C	Carbon disulfide
GC-MS	EPA 8260B / 8260C	Carbon tetrachloride
GC-MS	EPA 8260B / 8260C	Chlorobenzene
GC-MS	EPA 8260B / 8260C	2-Chloroethyl vinyl ether
GC-MS	EPA 8260B / 8260C	Chloroethane
GC-MS	EPA 8260B / 8260C	Chloroform
GC-MS	EPA 8260B / 8260C	1-Chlorohexane
GC-MS	EPA 8260B / 8260C	Chloromethane
GC-MS	EPA 8260B / 8260C	2-Chlorotoluene
GC-MS	EPA 8260B / 8260C	4-Chlorotoluene
GC-MS	EPA 8260B / 8260C	Isopropyl ether (DIPE)
GC-MS	EPA 8260B / 8260C	Dibromochloromethane
GC-MS	EPA 8260B / 8260C	1,2-Dibromo-3-chloropropane
GC-MS	EPA 8260B / 8260C	1,2-Dibromoethane
GC-MS	EPA 8260B / 8260C	Dibromomethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloroethane
GC-MS	EPA 8260B / 8260C	1,2-Dichloroethane
GC-MS	EPA 8260B / 8260C	1,2-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	1,3-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	trans-1,4-Dichloro-2-Butene
GC-MS	EPA 8260B / 8260C	1,4-Dichlorobenzene
GC-MS	EPA 8260B / 8260C	Dichlorodifluoromethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloroethene
GC-MS	EPA 8260B / 8260C	cis-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C	trans-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C	Dichlorofluoromethane
GC-MS	EPA 8260B / 8260C	1,1-Dichloropropene
GC-MS	EPA 8260B / 8260C	1,2-Dichloropropane

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	1,3-Dichloropropane
GC-MS	EPA 8260B / 8260C	2,2-Dichloropropane
GC-MS	EPA 8260B / 8260C	cis-1,3-Dichloropropene
GC-MS	EPA 8260B / 8260C	trans-1,3-Dichloropropene
GC-MS	EPA 8260B / 8260C	tert-Butyl ethyl ether (ETBE)
GC-MS	EPA 8260B / 8260C	Ethyl Methacrylate
GC-MS	EPA 8260B / 8260C	Ethylbenzene
GC-MS	EPA 8260B / 8260C	2-Hexanone (MBK)
GC-MS	EPA 8260B / 8260C	Hexachlorobutadiene
GC-MS	EPA 8260B / 8260C	Iodomethane
GC-MS	EPA 8260B / 8260C	Isopropylbenzene
GC-MS	EPA 8260B / 8260C	p-Isopropyltoluene
GC-MS	EPA 8260B / 8260C	Methylene Chloride
GC-MS	EPA 8260B / 8260C	4-Methyl-2-pentanone (MIBK)
GC-MS	EPA 8260B / 8260C	tert-Butyl methyl ether
GC-MS	EPA 8260B / 8260C	Naphthalene
GC-MS	EPA 8260B / 8260C	n-Propylbenzene
GC-MS	EPA 8260B / 8260C	Styrene
GC-MS	EPA 8260B / 8260C	tert-Amyl methyl ether (TAME)
GC-MS	EPA 8260B / 8260C	1,1,1,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C	1,1,2,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C	Tetrachloroethene
GC-MS	EPA 8260B / 8260C	Toluene
GC-MS	EPA 8260B / 8260C	1,1,1-Trichloroethane
GC-MS	EPA 8260B / 8260C	1,1,2-Trichloroethane
GC-MS	EPA 8260B / 8260C	1,2,3-Trichlorobenzene
GC-MS	EPA 8260B / 8260C	1,2,4-Trichlorobenzene
GC-MS	EPA 8260B / 8260C	Trichloroethene
GC-MS	EPA 8260B / 8260C	Trichlorofluoromethane
GC-MS	EPA 8260B / 8260C	1,2,3-Trichloropropane
GC-MS	EPA 8260B / 8260C	1,1,2-Trichloro1,2,2-trifluoroethane
GC-MS	EPA 8260B / 8260C	1,2,4-Trimethylbenzene
GC-MS	EPA 8260B / 8260C	1,3,5-Trimethylbenzene
GC-MS	EPA 8260B / 8260C	Vinyl Acetate
GC-MS	EPA 8260B / 8260C	Vinyl Chloride
GC-MS	EPA 8260B / 8260C	m-Xylene & p-xylene
GC-MS	EPA 8260B / 8260C	o-Xylene

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C	2-Butanol
GC-MS	EPA 8260B / 8260C	Cyclohexane
GC-MS	EPA 8260B / 8260C	1,4-Dioxane
GC-MS	EPA 8260B / 8260C	2-Chloro-1,1,1-trifluoroethane
GC-MS	EPA 8260B / 8260C	Chlorotrifluoroethylene
GC-MS	EPA 8260B / 8260C	cis-1,4-Dichloro-2-butene
GC-MS	EPA 8260B / 8260C	Ethanol
GC-MS	EPA 8260B / 8260C	Ethyl Methacrylate
GC-MS	EPA 8260B / 8260C	Isobutyl Alcohol
GC-MS	EPA 8260B / 8260C	Methacrylonitrile
GC-MS	EPA 8260B / 8260C	Methyl Methacrylate
GC-MS	EPA 8260B / 8260C	Pentachloroethane
GC-MS	EPA 8260B / 8260C	Propionitrile
GC-MS	EPA 8260B / 8260C	Sec-Propyl alcohol
GC-MS	EPA 8260B / 8260C	Tetrahydrofuran
GC-MS	EPA 8260B / 8260C	trans-1,4-Dichloro-2-butene
GC-MS	EPA 8260B / 8260C	Allyl Chloride
GC-MS	EPA 8260B / 8260C	Benzyl chloride
GC-MS	EPA 8260B / 8260C	Chloroprene
GC-MS	EPA 8260B / 8260C	Methyl Acetate
GC-MS	EPA 8260B / 8260C	Methylcyclohexane
GC-MS	EPA 8260B / 8260C SIM	Benzene
GC-MS	EPA 8260B / 8260C SIM	Carbon tetrachloride
GC-MS	EPA 8260B / 8260C SIM	Chloroform
GC-MS	EPA 8260B / 8260C SIM	Chloromethane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dibromo-3-chloropropane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dibromoethane
GC-MS	EPA 8260B / 8260C SIM	1,2-Dichloroethane
GC-MS	EPA 8260B / 8260C SIM	1,1-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	cis-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	trans-1,2-Dichloroethene
GC-MS	EPA 8260B / 8260C SIM	1,1,2,2-Tetrachloroethane
GC-MS	EPA 8260B / 8260C SIM	Tetrachloroethene
GC-MS	EPA 8260B / 8260C SIM	1,1,1-Trichloroethane
GC-MS	EPA 8260B / 8260C SIM	1,1,2-Trichloroethane
GC-MS	EPA 8260B / 8260C SIM	Trichloroethene
GC-MS	EPA 8260B / 8260C SIM	1,2,3-Trichloropropane
GC-MS	EPA 8260B / 8260C SIM	Vinyl Chloride

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8260B / 8260C SIM	1,4-Dioxane
GC-MS	EPA 8270C / 8270D	Acenaphthene
GC-MS	EPA 8270C / 8270D	Acenaphthylene
GC-MS	EPA 8270C / 8270D	Aniline
GC-MS	EPA 8270C / 8270D	Anthracene
GC-MS	EPA 8270C / 8270D	Azobenzene
GC-MS	EPA 8270C / 8270D	Benzidine
GC-MS	EPA 8270C / 8270D	Benzo(a)anthracene
GC-MS	EPA 8270C / 8270D	benzo(a)pyrene
GC-MS	EPA 8270C / 8270D	Benzo(b)fluoranthene
GC-MS	EPA 8270C / 8270D	Benzo(e)pyrene
GC-MS	EPA 8270C / 8270D	Benzo(g,h,i)perylene
GC-MS	EPA 8270C / 8270D	Benzo(k)fluoranthene
GC-MS	EPA 8270C / 8270D	Benzoic Acid
GC-MS	EPA 8270C / 8270D	Benzyl Alcohol
GC-MS	EPA 8270C / 8270D	Biphenyl
GC-MS	EPA 8270C / 8270D	bis(2-chloroethoxy)methane
GC-MS	EPA 8270C / 8270D	bis(2-chloroethyl)ether
GC-MS	EPA 8270C / 8270D	bis(2-chloroisopropyl)ether
GC-MS	EPA 8270C / 8270D	bis(2-Ethylhexyl)adipate
GC-MS	EPA 8270C / 8270D	bis(2-Ethylhexyl)phthalate
GC-MS	EPA 8270C / 8270D	4-Bromophenyl-phenylether
GC-MS	EPA 8270C / 8270D	Butylbenzylphthalate
GC-MS	EPA 8270C / 8270D	Carbazole
GC-MS	EPA 8270C / 8270D	4-Chloro-3-methylphenol
GC-MS	EPA 8270C / 8270D	4-Chloroaniline
GC-MS	EPA 8270C / 8270D	2-Chloronaphthalene
GC-MS	EPA 8270C / 8270D	2-Chlorophenol
GC-MS	EPA 8270C / 8270D	4-Chlorophenyl-phenylether
GC-MS	EPA 8270C / 8270D	Chrysene
GC-MS	EPA 8270C / 8270D	Dibenzo(a,h)anthracene
GC-MS	EPA 8270C / 8270D	Dibenzofuran
GC-MS	EPA 8270C / 8270D	1,2-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	1,3-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	1,4-Dichlorobenzene
GC-MS	EPA 8270C / 8270D	3,3'-Dichlorobenzidine
GC-MS	EPA 8270C / 8270D	2,4-Dichlorophenol
GC-MS	EPA 8270C / 8270D	Diethylphthalate

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	2,6-Dimethylnaphthalene
GC-MS	EPA 8270C / 8270D	2,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D	Dimethylphthalate
GC-MS	EPA 8270C / 8270D	Di-n-butylphthalate
GC-MS	EPA 8270C / 8270D	4,6-Dinitro-2-methylphenol
GC-MS	EPA 8270C / 8270D	2,4-Dinitrophenol
GC-MS	EPA 8270C / 8270D	2,4-Dinitrotoluene
GC-MS	EPA 8270C / 8270D	2,6-Dinitrotoluene
GC-MS	EPA 8270C / 8270D	Di-n-octylphthalate
GC-MS	EPA 8270C / 8270D	Fluoranthene
GC-MS	EPA 8270C / 8270D	Fluorene
GC-MS	EPA 8270C / 8270D	Hexachlorobenzene
GC-MS	EPA 8270C / 8270D	Hexachlorobutadiene
GC-MS	EPA 8270C / 8270D	Hexachlorocyclopentadiene
GC-MS	EPA 8270C / 8270D	Hexachloroethane
GC-MS	EPA 8270C / 8270D	Indeno(1,2,3-cd)pyrene
GC-MS	EPA 8270C / 8270D	Isophorone
GC-MS	EPA 8270C / 8270D	1-Methylnaphthalene
GC-MS	EPA 8270C / 8270D	2-Methylnaphthalene
GC-MS	EPA 8270C / 8270D	1-Methylphenanthrene
GC-MS	EPA 8270C / 8270D	2-Methylphenol
GC-MS	EPA 8270C / 8270D	3/4-Methylphenol
GC-MS	EPA 8270C / 8270D	Naphthalene
GC-MS	EPA 8270C / 8270D	2-Nitroaniline
GC-MS	EPA 8270C / 8270D	3-Nitroaniline
GC-MS	EPA 8270C / 8270D	4-Nitroaniline
GC-MS	EPA 8270C / 8270D	Nitrobenzene
GC-MS	EPA 8270C / 8270D	2-Nitrophenol
GC-MS	EPA 8270C / 8270D	4-Nitrophenol
GC-MS	EPA 8270C / 8270D	n-Nitrosodimethylamine
GC-MS	EPA 8270C / 8270D	n-Nitroso-di-n-propylamine
GC-MS	EPA 8270C / 8270D	n-Nitrosodiphenylamine
GC-MS	EPA 8270C / 8270D	Pentachlorophenol
GC-MS	EPA 8270C / 8270D	Perylene
GC-MS	EPA 8270C / 8270D	Phenanthrene
GC-MS	EPA 8270C / 8270D	Phenol
GC-MS	EPA 8270C / 8270D	Pyrene
GC-MS	EPA 8270C / 8270D	Pyridine

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	2,3,4,6-Tetrachlorophenol
GC-MS	EPA 8270C / 8270D	1,2,4-Trichlorobenzene
GC-MS	EPA 8270C / 8270D	2,3,4-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,3,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,4,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,4,6-Trichlorophenol
GC-MS	EPA 8270C / 8270D	2,3,5-Trimethylnaphthalene
GC-MS	EPA 8270C / 8270D	1,2,4,5-Tetrachlorobenzene
GC-MS	EPA 8270C / 8270D	1,3,5-Trinitrobenzene
GC-MS	EPA 8270C / 8270D	1,3-Dinitrobenzene
GC-MS	EPA 8270C / 8270D	1,4-Dioxane
GC-MS	EPA 8270C / 8270D	1,4-Naphthoquinone
GC-MS	EPA 8270C / 8270D	1-Chloronaphthalene
GC-MS	EPA 8270C / 8270D	1-Naphthylamine
GC-MS	EPA 8270C / 8270D	2,6-Dichlorophenol
GC-MS	EPA 8270C / 8270D	2-acetylaminofluorene
GC-MS	EPA 8270C / 8270D	2-Naphthylamine
GC-MS	EPA 8270C / 8270D	2-Picoline
GC-MS	EPA 8270C / 8270D	3,3-Dimethylbenzidine
GC-MS	EPA 8270C / 8270D	3,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D	3,5-Dimethylphenol
GC-MS	EPA 8270C / 8270D	3-Methylchlolanthrene
GC-MS	EPA 8270C / 8270D	4-Aminobiphenyl
GC-MS	EPA 8270C / 8270D	4-Nitroquinoline-N-oxide
GC-MS	EPA 8270C / 8270D	5-Nitro-o-toluidine
GC-MS	EPA 8270C / 8270D	7,12-Dimethylbenz(a)anthracene
GC-MS	EPA 8270C / 8270D	Acetophenone
GC-MS	EPA 8270C / 8270D	Aramite
GC-MS	EPA 8270C / 8270D	Atrazine
GC-MS	EPA 8270C / 8270D	Biphenyl
GC-MS	EPA 8270C / 8270D	Chlorobenzilate
GC-MS	EPA 8270C / 8270D	Diallate
GC-MS	EPA 8270C / 8270D	Dibenzo(a,j)acridine
GC-MS	EPA 8270C / 8270D	Dimethoate
GC-MS	EPA 8270C / 8270D	Dinoseb
GC-MS	EPA 8270C / 8270D	Diphenyl ether
GC-MS	EPA 8270C / 8270D	Disulfoton
GC-MS	EPA 8270C / 8270D	Ethyl methacrylate

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D	Ethyl methanesulfonate
GC-MS	EPA 8270C / 8270D	Ethyl parathion
GC-MS	EPA 8270C / 8270D	Famphur
GC-MS	EPA 8270C / 8270D	Hexachlorophene
GC-MS	EPA 8270C / 8270D	Hexachloropropene
GC-MS	EPA 8270C / 8270D	Isodrin
GC-MS	EPA 8270C / 8270D	Isosafrole
GC-MS	EPA 8270C / 8270D	kepone
GC-MS	EPA 8270C / 8270D	Methapyrilene
GC-MS	EPA 8270C / 8270D	Methyl methanesulfonate
GC-MS	EPA 8270C / 8270D	Methyl parathion
GC-MS	EPA 8270C / 8270D	N-nitrosodiethylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosodi-n-butylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosomethylethylamine
GC-MS	EPA 8270C / 8270D	N-Nitrosomorpholine
GC-MS	EPA 8270C / 8270D	N-Nitrosopiperdine
GC-MS	EPA 8270C / 8270D	N-Nitrosopyrrolidine
GC-MS	EPA 8270C / 8270D	O,O,O-triethyl phosphorothi
GC-MS	EPA 8270C / 8270D	o-toluidine
GC-MS	EPA 8270C / 8270D	p-Dimethylaminoazobenze
GC-MS	EPA 8270C / 8270D	Pentachlorobenzene
GC-MS	EPA 8270C / 8270D	Pentachloroethane
GC-MS	EPA 8270C / 8270D	Pentachloronitrobenzene
GC-MS	EPA 8270C / 8270D	Phenacetin
GC-MS	EPA 8270C / 8270D	Phorate
GC-MS	EPA 8270C / 8270D	p-phenylenediamine
GC-MS	EPA 8270C / 8270D	Pronamide
GC-MS	EPA 8270C / 8270D	Safrole
GC-MS	EPA 8270C / 8270D	Sulfotepp
GC-MS	EPA 8270C / 8270D	Thionazin
GC-MS	EPA 8270C / 8270D SIM	Acenaphthene
GC-MS	EPA 8270C / 8270D SIM	Acenaphthylene
GC-MS	EPA 8270C / 8270D SIM	Anthracene
GC-MS	EPA 8270C / 8270D SIM	Azobenzene
GC-MS	EPA 8270C / 8270D SIM	Benzo(a)anthracene
GC-MS	EPA 8270C / 8270D SIM	benzo(a)pyrene
GC-MS	EPA 8270C / 8270D SIM	Benzo(b)fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Benzo(e)pyrene

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-MS	EPA 8270C / 8270D SIM	Benzo(g,h,i)perylene
GC-MS	EPA 8270C / 8270D SIM	Benzo(k)fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Biphenyl
GC-MS	EPA 8270C / 8270D SIM	bis(2-chloroethyl)ether
GC-MS	EPA 8270C / 8270D SIM	bis(2-Ethylhexyl)phthalate
GC-MS	EPA 8270C / 8270D SIM	Carbazole
GC-MS	EPA 8270C / 8270D SIM	4-Chloro-3-methylphenol
GC-MS	EPA 8270C / 8270D SIM	2-Chlorophenol
GC-MS	EPA 8270C / 8270D SIM	Chrysene
GC-MS	EPA 8270C / 8270D SIM	Dibenzo(a,h)anthracene
GC-MS	EPA 8270C / 8270D SIM	2,4-Dichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,6-Dimethylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	2,4-Dimethylphenol
GC-MS	EPA 8270C / 8270D SIM	Fluoranthene
GC-MS	EPA 8270C / 8270D SIM	Fluorene
GC-MS	EPA 8270C / 8270D SIM	Hexachlorobenzene
GC-MS	EPA 8270C / 8270D SIM	Indeno(1,2,3-cd)pyrene
GC-MS	EPA 8270C / 8270D SIM	1-Methylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	2-Methylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	1-Methylphenanthrene
GC-MS	EPA 8270C / 8270D SIM	Naphthalene
GC-MS	EPA 8270C / 8270D SIM	n-Nitrosodimethylamine
GC-MS	EPA 8270C / 8270D SIM	n-Nitroso-di-n-propylamine
GC-MS	EPA 8270C / 8270D SIM	Pentachlorophenol
GC-MS	EPA 8270C / 8270D SIM	Perylene
GC-MS	EPA 8270C / 8270D SIM	Phenanthrene
GC-MS	EPA 8270C / 8270D SIM	Phenol
GC-MS	EPA 8270C / 8270D SIM	Pyrene
GC-MS	EPA 8270C / 8270D SIM	2,4,5-Trichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,4,6-Trichlorophenol
GC-MS	EPA 8270C / 8270D SIM	2,3,5-Trimethylnaphthalene
GC-MS	EPA 8270C / 8270D SIM	1,4-Dioxane
GC-MS	EPA 8270C / 8270D SIM	Butylbenzylphthalate
GC-MS	EPA 8270C / 8270D SIM	Diethylphthalate
GC-MS	EPA 8270C / 8270D SIM	Dimethylphthalate
GC-MS	EPA 8270C / 8270D SIM	Di-n-butylphthalate
GC-MS	EPA 8270C / 8270D SIM	Di-n-octylphthalate
HPLC	EPA 8310	Acenaphthene

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
HPLC	EPA 8310	Acenaphthylene
HPLC	EPA 8310	Anthracene
HPLC	EPA 8310	Benzo(a)anthracene
HPLC	EPA 8310	Benzo(a)pyrene
HPLC	EPA 8310	Benzo(b)fluoranthene
HPLC	EPA 8310	Benzo(g,h,i)perylene
HPLC	EPA 8310	Benzo(k)fluoranthene
HPLC	EPA 8310	Chrysene
HPLC	EPA 8310	Dibenzo(a,h)anthracene
HPLC	EPA 8310	Fluoranthene
HPLC	EPA 8310	Fluorene
HPLC	EPA 8310	Indeno(1,2,3-cd)pyrene
HPLC	EPA 8310	1-Methylnaphthalene
HPLC	EPA 8310	2-Methylnaphthalene
HPLC	EPA 8310	Naphthalene
HPLC	EPA 8310	Phenanthrene
HPLC	EPA 8310	Pyrene
HPLC	EPA 8330A	HMX
HPLC	EPA 8330A	RDX
HPLC	EPA 8330A	1,3,5-TNB
HPLC	EPA 8330A	1,3-DNB
HPLC	EPA 8330A	Tetryl
HPLC	EPA 8330A	Nitrobenzene
HPLC	EPA 8330A	2,4,6-TNT
HPLC	EPA 8330A	4-AM-2,6-DNT
HPLC	EPA 8330A	2-AM-4,6-DNT
HPLC	EPA 8330A	2,6-DNT
HPLC	EPA 8330A	2,4-DNT
HPLC	EPA 8330A	2-Nitrotoluene
HPLC	EPA 8330A	4-Nitrotoluene
HPLC	EPA 8330A	3-Nitrotoluene
HPLC	EPA 8330A	3,5-Dinitroaniline
HPLC	EPA 8330A	2,4-Diamino-6-nitrotoluene
HPLC	EPA 8330A	2,6-Diamino-4-nitrotoluene
HPLC	EPA 8330A	Picric Acid
HPLC	EPA 8332	Nitroglycerine

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
HPLC	EPA 8332	PETN
IC	EPA 9056 / 9056A	Bromate
IC	EPA 9056 / 9056A	Bromide
IC	EPA 9056 / 9056A	Chloride
IC	EPA 9056 / 9056A	Fluoride
IC	EPA 9056 / 9056A	Nitrate
IC	EPA 9056 / 9056A	Nitrite
IC	EPA 9056 / 9056A	Phosphate
IC	EPA 9056 / 9056A	Sulfate
IC	EPA 9056 / 9056A	Chlorate
GC	EPA 8151A	Acifluorfen
GC	EPA 8151A	Bentazon
GC	EPA 8151A	Chloramben
GC	EPA 8151A	2,4-D
GC	EPA 8151A	2,4-DB
GC	EPA 8151A	Dacthal
GC	EPA 8151A	Dalapon
GC	EPA 8151A	Dicamba
GC	EPA 8151A	3,5-Dichlorobenzoic acid
GC	EPA 8151A	Dichlorprop
GC	EPA 8151A	Dinoseb
GC	EPA 8151A	MCPA
GC	EPA 8151A	MCPP
GC	EPA 8151A	Pentachlorophenol
GC	EPA 8151A	Picloram
GC	EPA 8151A	Silvex
GC	EPA 8151A	2,4,5-T
Spectrometric	EPA 9014	Cyanide
Spectrometric	EPA 9014	Amenable Cyanide
Gravimetric	EPA 9071B	Oil & Grease
GFAA	CA 939M	Organo Lead
Preparation	**Method**	**Type**
Purge &Trap	EPA 5030B / EPA 5035	Volatiles Prep
Acid Digestion	EPA 3050B	Metals Prep
Alkaline Digestion	EPA 3060A	Hexavalent Chrom
Soxhlet	EPA 3540C	Organic Extraction

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
Sonication	EPA 3550C	Organic Extraction
Waste Dilution	EPA 3580A	Organic Extraction
Microwave	EPA 3546	Organic Extraction
TCLP	EPA 1311	Leaching
SPLP	EPA 1312	Leaching
Floricil Clean-up	EPA 3620C	Extract Clean-Up
GPC Clean-up	EPA 3640A	Extract Clean-Up
Sulfur Clean-up	EPA 3660B	Extract Clean-Up
Acid/Permanganate Clean-up	EPA 3665A	Extract Clean-Up

Air and Emissions		
Technology	**Method**	**Analyte**
GC-MS	TO-15	1,1,1-trichloroethane
GC-MS	TO-15	1,1,2,2-tetrachloroethane
GC-MS	TO-15	1,1,2-Trichloro1,2,2-trifluoroethane
GC-MS	TO-15	1,1,2-trichloroethane
GC-MS	TO-15	1,1-dichloroethane
GC-MS	TO-15	1,1-Dichloroethene
GC-MS	TO-15	1,2,4-trichlorobenzene
GC-MS	TO-15	1,2,4-trimethylbenzene
GC-MS	TO-15	1,2-dibromoethane
GC-MS	TO-15	1,2-dichloroethane
GC-MS	TO-15	1,2-dichloroethene
GC-MS	TO-15	1,2-dichloropropane
GC-MS	TO-15	1,3,5-trimethylbenzene
GC-MS	TO-15	1,3-Butadiene
GC-MS	TO-15	1,3-Butadiene, 1,1,2,3,4,Hexachloro
GC-MS	TO-15	1,3-dichlorobenzene
GC-MS	TO-15	1,4-dichlorobenzene
GC-MS	TO-15	1,4-Dioxane
GC-MS	TO-15	2,2,4-Trimethylpentane
GC-MS	TO-15	4-Ethyltoluene
GC-MS	TO-15	Acetone

Air and Emissions		
Technology	**Method**	**Analyte**
GC-MS	TO-15	Acrylonitrile
GC-MS	TO-15	Allyl Chloride
GC-MS	TO-15	Benzene
GC-MS	TO-15	Benzyl Chloride
GC-MS	TO-15	Bromodichloromethane
GC-MS	TO-15	Bromoform
GC-MS	TO-15	Bromomethane
GC-MS	TO-15	Carbon Disulfide
GC-MS	TO-15	Carbon Tetrachloride
GC-MS	TO-15	Chlorobenzene
GC-MS	TO-15	Chloroethane
GC-MS	TO-15	Chloroethene
GC-MS	TO-15	Chloroform
GC-MS	TO-15	Chloromethane
GC-MS	TO-15	cis-1,3-Dichloropropene
GC-MS	TO-15	Cyclohexane
GC-MS	TO-15	Dibromochloromethane
GC-MS	TO-15	Dichlorodifluoromethane
GC-MS	TO-15	Dichlorotetrafluoroethane
GC-MS	TO-15	Ethyl Acetate
GC-MS	TO-15	Ethylbenzene
GC-MS	TO-15	Isopropyl Alcohol
GC-MS	TO-15	m+p-Xylene
GC-MS	TO-15	Methyl butyl Ketone
GC-MS	TO-15	Methyl Ethyl Ketone
GC-MS	TO-15	Methyl Isobutyl Ketone
GC-MS	TO-15	Methyl Tert-Butyl Ether
GC-MS	TO-15	Methylene Chloride
GC-MS	TO-15	n-Heptane
GC-MS	TO-15	n-Hexane
GC-MS	TO-15	o-Xylene
GC-MS	TO-15	Styrene
GC-MS	TO-15	Tetrachloroethylene
GC-MS	TO-15	Tetrahydrofuran
GC-MS	TO-15	Toluene
GC-MS	TO-15	Trans-1,2-Dichloroethene

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Air and Emissions		
Technology	**Method**	**Analyte**
GC-MS	TO-15	trans-1,3-Dichloropropene
GC-MS	TO-15	Trichloroethylene
GC-MS	TO-15	Trichloromonofluoromethan
GC-MS	TO-15	Vinyl Acetate
GC-MS	TO-15	Vinyl Bromide

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. L2278

Vice President

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program
Laboratory Approval Program

555 Cordova Street
Anchorage, Alaska 99501
Main: 907.465.5390
Fax: 907.269.7649
cs.lab.cert@alaska.gov

May 2, 2018

Caspar Pang
EMAX Laboratories, Inc.
1835 W. 205th Street
Torrance, CA 90501

RE: Contaminated Sites Laboratory Approval **18-004**

Dear Mr. Pang,
Thank you for submitting an application to the Alaska Department of Environmental Conservation's Contaminated Sites Laboratory Approval Program (CS-LAP), on March 2, 2018. Based on your lab's Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP) approval through the ANSI-ASQ National Accreditation Board (ANAB), EMAX Laboratories, Inc., located at the above address, is granted ***Approved*** status to perform the analyses listed in the attached *Scope of Approval*, for Alaska contaminated sites projects, including underground storage tanks and leaking underground storage tank sites (UST/LUST), under the July 1, 2017 amendments to 18 AAC 78. This approval expires on ***January 20, 2020***.

Be aware that **any** changes in your DoD-ELAP approval status must be reported to the CS program within 3 business days. Failure to do so will result in revocation of **all** CS-LAP approvals for a period of one year. Notification should be in writing sent to cs.lab.cert@alaska.gov. We recommend also contacting the CS-LAP by telephone to verify that the message was received.

To report any changes in your lab's contact information (i.e. lab director, business name, location, etc.), please complete the form found at http://dec.alaska.gov/spar/csp/LabApproval/ApplyForApproval.htm and submit to cs.submittals@alaska.gov.

To apply for renewal of your approval, please complete the application found at http://dec.alaska.gov/spar/csp/LabApproval/ApplyForApproval.htm and submit to cs.submittals@alaska.gov. The required documentation must be submitted for renewal no later than 30 days before your date of expiration.

Please remember to include the laboratory's ID number, listed above, on all correspondence concerning the laboratory.

If you have any questions, please contact the CS-LAP at (907) 465-5390, or by email at cs.lab.cert@alaska.gov. Labs are also highly encouraged to join the CS-LAP listserv by going to http://list.state.ak.us/mailman/listinfo/cs.lab.approval.

Respectfully,

Brian Englund
Alaska CS Lab Approval Officer

Attachment: Scope of Approval

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
83-32-9	Water	Acenaphthene	625	ANAB
83-32-9	Soil	Acenaphthene	8310	ANAB
83-32-9	Water	Acenaphthene	8310	ANAB
83-32-9	Soil	Acenaphthene	8270C	ANAB
83-32-9	Water	Acenaphthene	8270C	ANAB
83-32-9	Soil	Acenaphthene	8270C-SIM	ANAB
83-32-9	Water	Acenaphthene	8270C-SIM	ANAB
83-32-9	Soil	Acenaphthene	8270D	ANAB
83-32-9	Water	Acenaphthene	8270D	ANAB
83-32-9	Soil	Acenaphthene	8270D-SIM	ANAB
83-32-9	Water	Acenaphthene	8270D-SIM	ANAB
208-96-8	Water	Acenaphthylene	625	ANAB
208-96-8	Soil	Acenaphthylene	8310	ANAB
208-96-8	Water	Acenaphthylene	8310	ANAB
208-96-8	Soil	Acenaphthylene	8270C	ANAB
208-96-8	Water	Acenaphthylene	8270C	ANAB
208-96-8	Soil	Acenaphthylene	8270C-SIM	ANAB
208-96-8	Water	Acenaphthylene	8270C-SIM	ANAB
208-96-8	Soil	Acenaphthylene	8270D	ANAB
208-96-8	Water	Acenaphthylene	8270D	ANAB
208-96-8	Soil	Acenaphthylene	8270D-SIM	ANAB
208-96-8	Water	Acenaphthylene	8270D-SIM	ANAB
67-64-1	Soil	Acetone	8260B	ANAB
67-64-1	Water	Acetone	8260B	ANAB
67-64-1	Soil	Acetone	8260C	ANAB
67-64-1	Water	Acetone	8260C	ANAB
67-64-1	Air	Acetone	TO-15	ANAB
309-00-2	Water	Aldrin	608	ANAB
309-00-2	Soil	Aldrin	8081A	ANAB
309-00-2	Water	Aldrin	8081A	ANAB
309-00-2	Soil	Aldrin	8081B	ANAB
309-00-2	Water	Aldrin	8081B	ANAB
120-12-7	Water	Anthracene	625	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
120-12-7	Soil	Anthracene	8310	ANAB
120-12-7	Water	Anthracene	8310	ANAB
120-12-7	Soil	Anthracene	8270C	ANAB
120-12-7	Water	Anthracene	8270C	ANAB
120-12-7	Soil	Anthracene	8270C-SIM	ANAB
120-12-7	Water	Anthracene	8270C-SIM	ANAB
120-12-7	Soil	Anthracene	8270D	ANAB
120-12-7	Water	Anthracene	8270D	ANAB
120-12-7	Soil	Anthracene	8270D-SIM	ANAB
120-12-7	Water	Anthracene	8270D-SIM	ANAB
7440-36-0	Water	Antimony (metallic)	200.7	ANAB
7440-36-0	Water	Antimony (metallic)	200.8	ANAB
7440-36-0	Soil	Antimony (metallic)	6010B	ANAB
7440-36-0	Water	Antimony (metallic)	6010B	ANAB
7440-36-0	Soil	Antimony (metallic)	6010C	ANAB
7440-36-0	Water	Antimony (metallic)	6010C	ANAB
7440-36-0	Soil	Antimony (metallic)	6020A	ANAB
7440-36-0	Water	Antimony (metallic)	6020A	ANAB
7440-36-0	Water	Antimony (metallic)	6020B	ANAB
7440-38-2	Water	Arsenic, Inorganic	200.7	ANAB
7440-38-2	Water	Arsenic, Inorganic	200.8	ANAB
7440-38-2	Soil	Arsenic, Inorganic	6010B	ANAB
7440-38-2	Water	Arsenic, Inorganic	6010B	ANAB
7440-38-2	Soil	Arsenic, Inorganic	6010C	ANAB
7440-38-2	Water	Arsenic, Inorganic	6010C	ANAB
7440-38-2	Soil	Arsenic, Inorganic	6020A	ANAB
7440-38-2	Water	Arsenic, Inorganic	6020A	ANAB
7440-38-2	Water	Arsenic, Inorganic	6020B	ANAB
7440-39-3	Water	Barium	200.7	ANAB
7440-39-3	Water	Barium	200.8	ANAB
7440-39-3	Soil	Barium	6010B	ANAB
7440-39-3	Water	Barium	6010B	ANAB
7440-39-3	Soil	Barium	6010C	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
7440-39-3	Water	Barium	6010C	ANAB
7440-39-3	Soil	Barium	6020A	ANAB
7440-39-3	Water	Barium	6020A	ANAB
7440-39-3	Water	Barium	6020B	ANAB
56-55-3	Water	Benz[a]anthracene	625	ANAB
56-55-3	Soil	Benz[a]anthracene	8310	ANAB
56-55-3	Water	Benz[a]anthracene	8310	ANAB
56-55-3	Soil	Benz[a]anthracene	8270C	ANAB
56-55-3	Water	Benz[a]anthracene	8270C	ANAB
56-55-3	Soil	Benz[a]anthracene	8270C-SIM	ANAB
56-55-3	Water	Benz[a]anthracene	8270C-SIM	ANAB
56-55-3	Soil	Benz[a]anthracene	8270D	ANAB
56-55-3	Water	Benz[a]anthracene	8270D	ANAB
56-55-3	Soil	Benz[a]anthracene	8270D-SIM	ANAB
56-55-3	Water	Benz[a]anthracene	8270D-SIM	ANAB
71-43-2	Water	Benzene	524.2	ANAB
71-43-2	Water	Benzene	624	ANAB
71-43-2	Soil	Benzene	8260B	ANAB
71-43-2	Water	Benzene	8260B	ANAB
71-43-2	Soil	Benzene	8260C	ANAB
71-43-2	Water	Benzene	8260C	ANAB
71-43-2	Air	Benzene	TO-15	ANAB
50-32-8	Water	Benzo[a]pyrene	625	ANAB
50-32-8	Soil	Benzo[a]pyrene	8310	ANAB
50-32-8	Water	Benzo[a]pyrene	8310	ANAB
50-32-8	Soil	Benzo[a]pyrene	8270C	ANAB
50-32-8	Water	Benzo[a]pyrene	8270C	ANAB
50-32-8	Soil	Benzo[a]pyrene	8270C-SIM	ANAB
50-32-8	Water	Benzo[a]pyrene	8270C-SIM	ANAB
50-32-8	Soil	Benzo[a]pyrene	8270D	ANAB
50-32-8	Water	Benzo[a]pyrene	8270D	ANAB
50-32-8	Soil	Benzo[a]pyrene	8270D-SIM	ANAB
50-32-8	Water	Benzo[a]pyrene	8270D-SIM	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
205-99-2	Water	Benzo[b]fluoranthene	625	ANAB
205-99-2	Soil	Benzo[b]fluoranthene	8310	ANAB
205-99-2	Water	Benzo[b]fluoranthene	8310	ANAB
205-99-2	Soil	Benzo[b]fluoranthene	8270C	ANAB
205-99-2	Water	Benzo[b]fluoranthene	8270C	ANAB
205-99-2	Soil	Benzo[b]fluoranthene	8270C-SIM	ANAB
205-99-2	Water	Benzo[b]fluoranthene	8270C-SIM	ANAB
205-99-2	Soil	Benzo[b]fluoranthene	8270D	ANAB
205-99-2	Water	Benzo[b]fluoranthene	8270D	ANAB
205-99-2	Soil	Benzo[b]fluoranthene	8270D-SIM	ANAB
205-99-2	Water	Benzo[b]fluoranthene	8270D-SIM	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	625	ANAB
191-24-2	Soil	Benzo[g,h,i]perylene	8310	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	8310	ANAB
191-24-2	Soil	Benzo[g,h,i]perylene	8270C	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	8270C	ANAB
191-24-2	Soil	Benzo[g,h,i]perylene	8270C-SIM	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	8270C-SIM	ANAB
191-24-2	Soil	Benzo[g,h,i]perylene	8270D	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	8270D	ANAB
191-24-2	Soil	Benzo[g,h,i]perylene	8270D-SIM	ANAB
191-24-2	Water	Benzo[g,h,i]perylene	8270D-SIM	ANAB
207-08-9	Water	Benzo[k]fluoranthene	625	ANAB
207-08-9	Soil	Benzo[k]fluoranthene	8310	ANAB
207-08-9	Water	Benzo[k]fluoranthene	8310	ANAB
207-08-9	Soil	Benzo[k]fluoranthene	8270C	ANAB
207-08-9	Water	Benzo[k]fluoranthene	8270C	ANAB
207-08-9	Soil	Benzo[k]fluoranthene	8270C-SIM	ANAB
207-08-9	Water	Benzo[k]fluoranthene	8270C-SIM	ANAB
207-08-9	Soil	Benzo[k]fluoranthene	8270D	ANAB
207-08-9	Water	Benzo[k]fluoranthene	8270D	ANAB
207-08-9	Soil	Benzo[k]fluoranthene	8270D-SIM	ANAB
207-08-9	Water	Benzo[k]fluoranthene	8270D-SIM	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
65-85-0	Soil	Benzoic Acid	8270C	ANAB
65-85-0	Water	Benzoic Acid	8270C	ANAB
65-85-0	Soil	Benzoic Acid	8270D	ANAB
65-85-0	Water	Benzoic Acid	8270D	ANAB
100-51-6	Soil	Benzyl Alcohol	8270C	ANAB
100-51-6	Water	Benzyl Alcohol	8270C	ANAB
100-51-6	Soil	Benzyl Alcohol	8270D	ANAB
100-51-6	Water	Benzyl Alcohol	8270D	ANAB
7440-41-7	Water	Beryllium and compounds	200.7	ANAB
7440-41-7	Water	Beryllium and compounds	200.8	ANAB
7440-41-7	Soil	Beryllium and compounds	6010B	ANAB
7440-41-7	Water	Beryllium and compounds	6010B	ANAB
7440-41-7	Soil	Beryllium and compounds	6010C	ANAB
7440-41-7	Water	Beryllium and compounds	6010C	ANAB
7440-41-7	Soil	Beryllium and compounds	6020A	ANAB
7440-41-7	Water	Beryllium and compounds	6020A	ANAB
7440-41-7	Water	Beryllium and compounds	6020B	ANAB
111-44-4	Soil	Bis(2-chloroethyl)ether	8270C	ANAB
111-44-4	Water	Bis(2-chloroethyl)ether	8270C	ANAB
111-44-4	Soil	Bis(2-chloroethyl)ether	8270C-SIM	ANAB
111-44-4	Water	Bis(2-chloroethyl)ether	8270C-SIM	ANAB
111-44-4	Soil	Bis(2-chloroethyl)ether	8270D	ANAB
111-44-4	Water	Bis(2-chloroethyl)ether	8270D	ANAB
111-44-4	Soil	Bis(2-chloroethyl)ether	8270D-SIM	ANAB
111-44-4	Water	Bis(2-chloroethyl)ether	8270D-SIM	ANAB
117-81-7	Soil	Bis(2-ethylhexyl)phthalate (DEHP)	8270C	ANAB
117-81-7	Water	Bis(2-ethylhexyl)phthalate (DEHP)	8270C	ANAB
117-81-7	Soil	Bis(2-ethylhexyl)phthalate (DEHP)	8270C-SIM	ANAB
117-81-7	Water	Bis(2-ethylhexyl)phthalate (DEHP)	8270C-SIM	ANAB
117-81-7	Soil	Bis(2-ethylhexyl)phthalate (DEHP)	8270D	ANAB
117-81-7	Water	Bis(2-ethylhexyl)phthalate (DEHP)	8270D	ANAB
117-81-7	Soil	Bis(2-ethylhexyl)phthalate (DEHP)	8270D-SIM	ANAB
117-81-7	Water	Bis(2-ethylhexyl)phthalate (DEHP)	8270D-SIM	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
108-86-1	Water	Bromobenzene	524.2	ANAB
108-86-1	Soil	Bromobenzene	8260B	ANAB
108-86-1	Water	Bromobenzene	8260B	ANAB
108-86-1	Soil	Bromobenzene	8260C	ANAB
108-86-1	Water	Bromobenzene	8260C	ANAB
75-27-4	Water	Bromodichloromethane	524.2	ANAB
75-27-4	Water	Bromodichloromethane	624	ANAB
75-27-4	Soil	Bromodichloromethane	8260B	ANAB
75-27-4	Water	Bromodichloromethane	8260B	ANAB
75-27-4	Soil	Bromodichloromethane	8260C	ANAB
75-27-4	Water	Bromodichloromethane	8260C	ANAB
75-27-4	Air	Bromodichloromethane	TO-15	ANAB
75-25-2	Water	Bromoform	524.2	ANAB
75-25-2	Water	Bromoform	624	ANAB
75-25-2	Soil	Bromoform	8260B	ANAB
75-25-2	Water	Bromoform	8260B	ANAB
75-25-2	Soil	Bromoform	8260C	ANAB
75-25-2	Water	Bromoform	8260C	ANAB
75-25-2	Air	Bromoform	TO-15	ANAB
74-83-9	Water	Bromomethane	524.2	ANAB
74-83-9	Water	Bromomethane	624	ANAB
74-83-9	Soil	Bromomethane	8260B	ANAB
74-83-9	Water	Bromomethane	8260B	ANAB
74-83-9	Soil	Bromomethane	8260C	ANAB
74-83-9	Water	Bromomethane	8260C	ANAB
74-83-9	Air	Bromomethane	TO-15	ANAB
106-99-0	Air	Butadiene, 1,3-	TO-15	ANAB
85-68-7	Soil	Butyl Benzyl Phthalate	8270C	ANAB
85-68-7	Water	Butyl Benzyl Phthalate	8270C	ANAB
85-68-7	Soil	Butyl Benzyl Phthalate	8270C-SIM	ANAB
85-68-7	Water	Butyl Benzyl Phthalate	8270C-SIM	ANAB
85-68-7	Soil	Butyl Benzyl Phthalate	8270D	ANAB
85-68-7	Water	Butyl Benzyl Phthalate	8270D	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
85-68-7	Soil	Butyl Benzyl Phthalate	8270D-SIM	ANAB
85-68-7	Water	Butyl Benzyl Phthalate	8270D-SIM	ANAB
104-51-8	Water	Butylbenzene, n-	524.2	ANAB
104-51-8	Soil	Butylbenzene, n-	8260B	ANAB
104-51-8	Water	Butylbenzene, n-	8260B	ANAB
104-51-8	Soil	Butylbenzene, n-	8260C	ANAB
104-51-8	Water	Butylbenzene, n-	8260C	ANAB
135-98-8	Water	Butylbenzene, sec-	524.2	ANAB
135-98-8	Soil	Butylbenzene, sec-	8260B	ANAB
135-98-8	Water	Butylbenzene, sec-	8260B	ANAB
135-98-8	Soil	Butylbenzene, sec-	8260C	ANAB
135-98-8	Water	Butylbenzene, sec-	8260C	ANAB
98-06-6	Water	Butylbenzene, tert-	524.2	ANAB
98-06-6	Soil	Butylbenzene, tert-	8260B	ANAB
98-06-6	Water	Butylbenzene, tert-	8260B	ANAB
98-06-6	Soil	Butylbenzene, tert-	8260C	ANAB
98-06-6	Water	Butylbenzene, tert-	8260C	ANAB
7440-43-9	Water	Cadmium	200.7	ANAB
7440-43-9	Water	Cadmium	200.8	ANAB
7440-43-9	Soil	Cadmium	6010B	ANAB
7440-43-9	Water	Cadmium	6010B	ANAB
7440-43-9	Soil	Cadmium	6010C	ANAB
7440-43-9	Water	Cadmium	6010C	ANAB
7440-43-9	Soil	Cadmium	6020A	ANAB
7440-43-9	Water	Cadmium	6020A	ANAB
7440-43-9	Water	Cadmium	6020B	ANAB
75-15-0	Soil	Carbon Disulfide	8260B	ANAB
75-15-0	Water	Carbon Disulfide	8260B	ANAB
75-15-0	Soil	Carbon Disulfide	8260C	ANAB
75-15-0	Water	Carbon Disulfide	8260C	ANAB
75-15-0	Air	Carbon Disulfide	TO-15	ANAB
56-23-5	Water	Carbon Tetrachloride	524.2	ANAB
56-23-5	Water	Carbon Tetrachloride	624	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
56-23-5	Soil	Carbon Tetrachloride	8260B	ANAB
56-23-5	Water	Carbon Tetrachloride	8260B	ANAB
56-23-5	Soil	Carbon Tetrachloride	8260C	ANAB
56-23-5	Water	Carbon Tetrachloride	8260C	ANAB
56-23-5	Air	Carbon Tetrachloride	TO-15	ANAB
5103-71-9	Water	Chlordane, α-	608	ANAB
5103-74-2	Water	Chlordane, γ-	608	ANAB
12789-03-6	Water	Chlordane, Total	608	ANAB
12789-03-6	Soil	Chlordane, Total	8081A	ANAB
12789-03-6	Water	Chlordane, Total	8081A	ANAB
12789-03-6	Soil	Chlordane, Total	8081B	ANAB
12789-03-6	Water	Chlordane, Total	8081B	ANAB
143-50-0	Soil	Chlordecone (Kepone)	8081A	ANAB
143-50-0	Water	Chlordecone (Kepone)	8081A	ANAB
143-50-0	Soil	Chlordecone (Kepone)	8081B	ANAB
143-50-0	Water	Chlordecone (Kepone)	8081B	ANAB
106-47-8	Soil	Chloroaniline, p-	8270C	ANAB
106-47-8	Water	Chloroaniline, p-	8270C	ANAB
106-47-8	Soil	Chloroaniline, p-	8270D	ANAB
106-47-8	Water	Chloroaniline, p-	8270D	ANAB
108-90-7	Water	Chlorobenzene	524.2	ANAB
108-90-7	Water	Chlorobenzene	624	ANAB
108-90-7	Soil	Chlorobenzene	8260B	ANAB
108-90-7	Water	Chlorobenzene	8260B	ANAB
108-90-7	Soil	Chlorobenzene	8260C	ANAB
108-90-7	Water	Chlorobenzene	8260C	ANAB
108-90-7	Air	Chlorobenzene	TO-15	ANAB
67-66-3	Water	Chloroform	524.2	ANAB
67-66-3	Water	Chloroform	624	ANAB
67-66-3	Soil	Chloroform	8260B	ANAB
67-66-3	Water	Chloroform	8260B	ANAB
67-66-3	Soil	Chloroform	8260C	ANAB
67-66-3	Water	Chloroform	8260C	ANAB

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67-66-3	Air	Chloroform	TO-15	ANAB
74-87-3	Water	Chloromethane	524.2	ANAB
74-87-3	Water	Chloromethane	624	ANAB
74-87-3	Soil	Chloromethane	8260B	ANAB
74-87-3	Water	Chloromethane	8260B	ANAB
74-87-3	Soil	Chloromethane	8260C	ANAB
74-87-3	Water	Chloromethane	8260C	ANAB
74-87-3	Air	Chloromethane	TO-15	ANAB
91-58-7	Soil	Chloronaphthalene, Beta-	8270C	ANAB
91-58-7	Water	Chloronaphthalene, Beta-	8270C	ANAB
91-58-7	Soil	Chloronaphthalene, Beta-	8270D	ANAB
91-58-7	Water	Chloronaphthalene, Beta-	8270D	ANAB
91-58-7	Water	Chlorophenol, 2-	625	ANAB
95-57-8	Soil	Chlorophenol, 2-	8270C	ANAB
95-57-8	Water	Chlorophenol, 2-	8270C	ANAB
95-57-8	Soil	Chlorophenol, 2-	8270C-SIM	ANAB
95-57-8	Water	Chlorophenol, 2-	8270C-SIM	ANAB
95-57-8	Soil	Chlorophenol, 2-	8270D	ANAB
95-57-8	Water	Chlorophenol, 2-	8270D	ANAB
95-57-8	Soil	Chlorophenol, 2-	8270D-SIM	ANAB
95-57-8	Water	Chlorophenol, 2-	8270D-SIM	ANAB
7440-47-3	Water	Chromium (Total)	200.7	ANAB
7440-47-3	Water	Chromium (Total)	200.8	ANAB
7440-47-3	Soil	Chromium (Total)	6010B	ANAB
7440-47-3	Water	Chromium (Total)	6010B	ANAB
7440-47-3	Soil	Chromium (Total)	6010C	ANAB
7440-47-3	Water	Chromium (Total)	6010C	ANAB
7440-47-3	Soil	Chromium (Total)	6020A	ANAB
7440-47-3	Water	Chromium (Total)	6020A	ANAB
7440-47-3	Water	Chromium (Total)	6020B	ANAB
18540-29-9	Soil	Chromium (VI)	7196	ANAB
18540-29-9	Water	Chromium (VI)	7196	ANAB
18540-29-9	Soil	Chromium (VI)	7199	ANAB

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18540-29-9	Water	Chromium (VI)	7199	ANAB
218-01-9	Water	Chrysene	625	ANAB
218-01-9	Soil	Chrysene	8310	ANAB
218-01-9	Water	Chrysene	8310	ANAB
218-01-9	Soil	Chrysene	8270C	ANAB
218-01-9	Water	Chrysene	8270C	ANAB
218-01-9	Soil	Chrysene	8270C-SIM	ANAB
218-01-9	Water	Chrysene	8270C-SIM	ANAB
218-01-9	Soil	Chrysene	8270D	ANAB
218-01-9	Water	Chrysene	8270D	ANAB
218-01-9	Soil	Chrysene	8270D-SIM	ANAB
218-01-9	Water	Chrysene	8270D-SIM	ANAB
7440-50-8	Water	Copper	200.7	ANAB
7440-50-8	Water	Copper	200.8	ANAB
7440-50-8	Soil	Copper	6010B	ANAB
7440-50-8	Water	Copper	6010B	ANAB
7440-50-8	Soil	Copper	6010C	ANAB
7440-50-8	Water	Copper	6010C	ANAB
7440-50-8	Soil	Copper	6020A	ANAB
7440-50-8	Water	Copper	6020A	ANAB
7440-50-8	Water	Copper	6020B	ANAB
108-39-4	Soil	Cresol, m- (3-Methylphenol)	8270C	ANAB
108-39-4	Water	Cresol, m- (3-Methylphenol)	8270C	ANAB
108-39-4	Soil	Cresol, m- (3-Methylphenol)	8270D	ANAB
108-39-4	Water	Cresol, m- (3-Methylphenol)	8270D	ANAB
95-48-7	Water	Cresol, o- (2-Methylphenol)	625	ANAB
95-48-7	Soil	Cresol, o- (2-Methylphenol)	8270C	ANAB
95-48-7	Water	Cresol, o- (2-Methylphenol)	8270C	ANAB
95-48-7	Soil	Cresol, o- (2-Methylphenol)	8270D	ANAB
95-48-7	Water	Cresol, o- (2-Methylphenol)	8270D	ANAB
106-44-5	Water	Cresol, p- (4-Methylphenol)	625	ANAB
106-44-5	Soil	Cresol, p- (4-Methylphenol)	8270C	ANAB
106-44-5	Water	Cresol, p- (4-Methylphenol)	8270C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
106-44-5	Soil	Cresol, p- (4-Methylphenol)	8270D	ANAB
106-44-5	Water	Cresol, p- (4-Methylphenol)	8270D	ANAB
98-82-8	Soil	Cumene (Isopropylbenzene)	8260B	ANAB
98-82-8	Water	Cumene (Isopropylbenzene)	8260B	ANAB
98-82-8	Soil	Cumene (Isopropylbenzene)	8260C	ANAB
98-82-8	Water	Cumene (Isopropylbenzene)	8260C	ANAB
57-12-5	Soil	Cyanide (CN-)	9010/9014	ANAB
57-12-5	Water	Cyanide (CN-)	9010/9014	ANAB
110-82-7	Soil	Cyclohexane	8260B	ANAB
110-82-7	Water	Cyclohexane	8260B	ANAB
110-82-7	Soil	Cyclohexane	8260C	ANAB
110-82-7	Water	Cyclohexane	8260C	ANAB
110-82-7	Air	Cyclohexane	TO-15	ANAB
72-54-8	Water	DDD, 4,4’-	608	ANAB
72-54-8	Soil	DDD, 4,4’-	8081A	ANAB
72-54-8	Water	DDD, 4,4’-	8081A	ANAB
72-54-8	Soil	DDD, 4,4’-	8081B	ANAB
72-54-8	Water	DDD, 4,4’-	8081B	ANAB
72-55-9	Water	DDE, 4,4’-	608	ANAB
72-55-9	Soil	DDE, 4,4’-	8081A	ANAB
72-55-9	Water	DDE, 4,4’-	8081A	ANAB
72-55-9	Soil	DDE, 4,4’-	8081B	ANAB
72-55-9	Water	DDE, 4,4’-	8081B	ANAB
50-29-3	Water	DDT, 4,4’-	608	ANAB
50-29-3	Soil	DDT, 4,4’-	8081A	ANAB
50-29-3	Water	DDT, 4,4’-	8081A	ANAB
50-29-3	Soil	DDT, 4,4’-	8081B	ANAB
50-29-3	Water	DDT, 4,4’-	8081B	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	625	ANAB
53-70-3	Soil	Dibenz[a,h]anthracene	8310	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	8310	ANAB
53-70-3	Soil	Dibenz[a,h]anthracene	8270C	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	8270C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
53-70-3	Soil	Dibenz[a,h]anthracene	8270C-SIM	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	8270C-SIM	ANAB
53-70-3	Soil	Dibenz[a,h]anthracene	8270D	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	8270D	ANAB
53-70-3	Soil	Dibenz[a,h]anthracene	8270D-SIM	ANAB
53-70-3	Water	Dibenz[a,h]anthracene	8270D-SIM	ANAB
132-64-9	Soil	Dibenzofuran	8270C	ANAB
132-64-9	Water	Dibenzofuran	8270C	ANAB
132-64-9	Soil	Dibenzofuran	8270D	ANAB
132-64-9	Water	Dibenzofuran	8270D	ANAB
124-48-1	Water	Dibromochloromethane	524.2	ANAB
124-48-1	Water	Dibromochloromethane	624	ANAB
124-48-1	Soil	Dibromochloromethane	8260B	ANAB
124-48-1	Water	Dibromochloromethane	8260B	ANAB
124-48-1	Soil	Dibromochloromethane	8260C	ANAB
124-48-1	Water	Dibromochloromethane	8260C	ANAB
124-48-1	Air	Dibromochloromethane	TO-15	ANAB
106-93-4	Soil	Dibromoethane, 1,2- (Ethylene Dibromide)	8011	ANAB
106-93-4	Water	Dibromoethane, 1,2- (Ethylene Dibromide)	8011	ANAB
106-93-4	Soil	Dibromoethane, 1,2- (Ethylene Dibromide)	8260B	ANAB
106-93-4	Water	Dibromoethane, 1,2- (Ethylene Dibromide)	8260B	ANAB
106-93-4	Soil	Dibromoethane, 1,2- (Ethylene Dibromide)	8260C	ANAB
106-93-4	Water	Dibromoethane, 1,2- (Ethylene Dibromide)	8260C	ANAB
106-93-4	Air	Dibromoethane, 1,2- (Ethylene Dibromide)	TO-15	ANAB
74-95-3	Water	Dibromomethane (Methylene Bromide)	524.2	ANAB
74-95-3	Soil	Dibromomethane (Methylene Bromide)	8260B	ANAB
74-95-3	Water	Dibromomethane (Methylene Bromide)	8260B	ANAB
74-95-3	Soil	Dibromomethane (Methylene Bromide)	8260C	ANAB
74-95-3	Water	Dibromomethane (Methylene Bromide)	8260C	ANAB
84-74-2	Soil	Dibutyl Phthalate	8270C	ANAB
84-74-2	Water	Dibutyl Phthalate	8270C	ANAB
84-74-2	Soil	Dibutyl Phthalate	8270C-SIM	ANAB
84-74-2	Water	Dibutyl Phthalate	8270C-SIM	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
84-74-2	Soil	Dibutyl Phthalate	8270D	ANAB
84-74-2	Water	Dibutyl Phthalate	8270D	ANAB
84-74-2	Soil	Dibutyl Phthalate	8270D-SIM	ANAB
84-74-2	Water	Dibutyl Phthalate	8270D-SIM	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	524.2	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	624	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	625	ANAB
95-50-1	Soil	Dichlorobenzene, 1,2-	8260B	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	8260B	ANAB
95-50-1	Soil	Dichlorobenzene, 1,2-	8260C	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	8260C	ANAB
95-50-1	Soil	Dichlorobenzene, 1,2-	8270C	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	8270C	ANAB
95-50-1	Soil	Dichlorobenzene, 1,2-	8270D	ANAB
95-50-1	Water	Dichlorobenzene, 1,2-	8270D	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	524.2	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	624	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	625	ANAB
541-73-1	Soil	Dichlorobenzene, 1,3-	8260B	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	8260B	ANAB
541-73-1	Soil	Dichlorobenzene, 1,3-	8260C	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	8260C	ANAB
541-73-1	Soil	Dichlorobenzene, 1,3-	8270C	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	8270C	ANAB
541-73-1	Soil	Dichlorobenzene, 1,3-	8270D	ANAB
541-73-1	Water	Dichlorobenzene, 1,3-	8270D	ANAB
541-73-1	Air	Dichlorobenzene, 1,3-	TO-15	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	524.2	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	624	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	625	ANAB
106-46-7	Soil	Dichlorobenzene, 1,4-	8260B	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	8260B	ANAB
106-46-7	Soil	Dichlorobenzene, 1,4-	8260C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
106-46-7	Water	Dichlorobenzene, 1,4-	8260C	ANAB
106-46-7	Soil	Dichlorobenzene, 1,4-	8270C	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	8270C	ANAB
106-46-7	Soil	Dichlorobenzene, 1,4-	8270D	ANAB
106-46-7	Water	Dichlorobenzene, 1,4-	8270D	ANAB
106-46-7	Air	Dichlorobenzene, 1,4-	TO-15	ANAB
91-94-1	Soil	Dichlorobenzidine, 3,3'-	8270C	ANAB
91-94-1	Water	Dichlorobenzidine, 3,3'-	8270C	ANAB
91-94-1	Soil	Dichlorobenzidine, 3,3'-	8270D	ANAB
91-94-1	Water	Dichlorobenzidine, 3,3'-	8270D	ANAB
75-71-8	Water	Dichlorodifluoromethane	524.2	ANAB
75-71-8	Water	Dichlorodifluoromethane	624	ANAB
75-71-8	Soil	Dichlorodifluoromethane	8260B	ANAB
75-71-8	Water	Dichlorodifluoromethane	8260B	ANAB
75-71-8	Soil	Dichlorodifluoromethane	8260C	ANAB
75-71-8	Water	Dichlorodifluoromethane	8260C	ANAB
75-71-8	Air	Dichlorodifluoromethane	TO-15	ANAB
75-34-3	Water	Dichloroethane, 1,1-	524.2	ANAB
75-34-3	Water	Dichloroethane, 1,1-	624	ANAB
75-34-3	Soil	Dichloroethane, 1,1-	8260B	ANAB
75-34-3	Water	Dichloroethane, 1,1-	8260B	ANAB
75-34-3	Soil	Dichloroethane, 1,1-	8260C	ANAB
75-34-3	Water	Dichloroethane, 1,1-	8260C	ANAB
75-34-3	Air	Dichloroethane, 1,1-	TO-15	ANAB
107-06-2	Water	Dichloroethane, 1,2-	524.2	ANAB
107-06-2	Water	Dichloroethane, 1,2-	624	ANAB
107-06-2	Soil	Dichloroethane, 1,2-	8260B	ANAB
107-06-2	Water	Dichloroethane, 1,2-	8260B	ANAB
107-06-2	Soil	Dichloroethane, 1,2-	8260C	ANAB
107-06-2	Water	Dichloroethane, 1,2-	8260C	ANAB
107-06-2	Air	Dichloroethane, 1,2-	TO-15	ANAB
75-35-4	Water	Dichloroethylene, 1,1-	524.2	ANAB
75-35-4	Water	Dichloroethylene, 1,1-	624	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
75-35-4	Soil	Dichloroethylene, 1,1-	8260B	ANAB
75-35-4	Water	Dichloroethylene, 1,1-	8260B	ANAB
75-35-4	Soil	Dichloroethylene, 1,1-	8260C	ANAB
75-35-4	Water	Dichloroethylene, 1,1-	8260C	ANAB
75-35-4	Air	Dichloroethylene, 1,1-	TO-15	ANAB
156-59-2	Water	Dichloroethylene, 1,2-cis-	524.2	ANAB
156-59-2	Water	Dichloroethylene, 1,2-cis-	624	ANAB
156-59-2	Soil	Dichloroethylene, 1,2-cis-	8260B	ANAB
156-59-2	Water	Dichloroethylene, 1,2-cis-	8260B	ANAB
156-59-2	Soil	Dichloroethylene, 1,2-cis-	8260C	ANAB
156-59-2	Water	Dichloroethylene, 1,2-cis-	8260C	ANAB
156-60-5	Water	Dichloroethylene, 1,2-trans-	524.2	ANAB
156-60-5	Water	Dichloroethylene, 1,2-trans-	624	ANAB
156-60-5	Soil	Dichloroethylene, 1,2-trans-	8260B	ANAB
156-60-5	Water	Dichloroethylene, 1,2-trans-	8260B	ANAB
156-60-5	Soil	Dichloroethylene, 1,2-trans-	8260C	ANAB
156-60-5	Water	Dichloroethylene, 1,2-trans-	8260C	ANAB
156-60-5	Air	Dichloroethylene, 1,2-trans-	TO-15	ANAB
120-83-2	Water	Dichlorophenol, 2,4-	625	ANAB
120-83-2	Soil	Dichlorophenol, 2,4-	8270C	ANAB
120-83-2	Water	Dichlorophenol, 2,4-	8270C	ANAB
120-83-2	Soil	Dichlorophenol, 2,4-	8270C-SIM	ANAB
120-83-2	Water	Dichlorophenol, 2,4-	8270C-SIM	ANAB
120-83-2	Soil	Dichlorophenol, 2,4-	8270D	ANAB
120-83-2	Water	Dichlorophenol, 2,4-	8270D	ANAB
120-83-2	Soil	Dichlorophenol, 2,4-	8270D-SIM	ANAB
120-83-2	Water	Dichlorophenol, 2,4-	8270D-SIM	ANAB
94-75-7	Soil	Dichlorophenoxy Acetic Acid, 2,4- (2,4-D)	8151A	ANAB
94-75-7	Water	Dichlorophenoxy Acetic Acid, 2,4- (2,4-D)	8151A	ANAB
78-87-5	Water	Dichloropropane, 1,2-	524.2	ANAB
78-87-5	Water	Dichloropropane, 1,2-	624	ANAB
78-87-5	Soil	Dichloropropane, 1,2-	8260B	ANAB
78-87-5	Water	Dichloropropane, 1,2-	8260B	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
78-87-5	Soil	Dichloropropane, 1,2-	8260C	ANAB
78-87-5	Water	Dichloropropane, 1,2-	8260C	ANAB
78-87-5	Air	Dichloropropane, 1,2-	TO-15	ANAB
542-75-6	Soil	Dichloropropene, 1,3- (cis + trans)	8260B	ANAB
542-75-6	Water	Dichloropropene, 1,3- (cis + trans)	8260B	ANAB
542-75-6	Soil	Dichloropropene, 1,3- (cis + trans)	8260C	ANAB
542-75-6	Water	Dichloropropene, 1,3- (cis + trans)	8260C	ANAB
60-57-1	Water	Dieldrin	608	ANAB
60-57-1	Soil	Dieldrin	8081A	ANAB
60-57-1	Water	Dieldrin	8081A	ANAB
60-57-1	Soil	Dieldrin	8081B	ANAB
60-57-1	Water	Dieldrin	8081B	ANAB
N/A	Soil	Diesel Range Organics (C10 – C25)	AK 102	ANAB
N/A	Water	Diesel Range Organics (C10 – C25)	AK 102	ANAB
84-66-2	Water	Diethyl Phthalate	625	ANAB
84-66-2	Soil	Diethyl Phthalate	8270C	ANAB
84-66-2	Water	Diethyl Phthalate	8270C	ANAB
84-66-2	Soil	Diethyl Phthalate	8270C-SIM	ANAB
84-66-2	Water	Diethyl Phthalate	8270C-SIM	ANAB
84-66-2	Soil	Diethyl Phthalate	8270D	ANAB
84-66-2	Water	Diethyl Phthalate	8270D	ANAB
84-66-2	Soil	Diethyl Phthalate	8270D-SIM	ANAB
84-66-2	Water	Diethyl Phthalate	8270D-SIM	ANAB
105-67-9	Water	Dimethylphenol, 2,4-	625	ANAB
105-67-9	Soil	Dimethylphenol, 2,4-	8270C	ANAB
105-67-9	Water	Dimethylphenol, 2,4-	8270C	ANAB
105-67-9	Soil	Dimethylphenol, 2,4-	8270C-SIM	ANAB
105-67-9	Water	Dimethylphenol, 2,4-	8270C-SIM	ANAB
105-67-9	Soil	Dimethylphenol, 2,4-	8270D	ANAB
105-67-9	Water	Dimethylphenol, 2,4-	8270D	ANAB
105-67-9	Soil	Dimethylphenol, 2,4-	8270D-SIM	ANAB
105-67-9	Water	Dimethylphenol, 2,4-	8270D-SIM	ANAB
131-11-3	Water	Dimethylphthalate	625	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
131-11-3	Soil	Dimethylphthalate	8270C	ANAB
131-11-3	Water	Dimethylphthalate	8270C	ANAB
131-11-3	Soil	Dimethylphthalate	8270C-SIM	ANAB
131-11-3	Water	Dimethylphthalate	8270C-SIM	ANAB
131-11-3	Soil	Dimethylphthalate	8270D	ANAB
131-11-3	Water	Dimethylphthalate	8270D	ANAB
131-11-3	Soil	Dimethylphthalate	8270D-SIM	ANAB
131-11-3	Water	Dimethylphthalate	8270D-SIM	ANAB
99-65-0	Soil	Dinitrobenzene, 1,3-	8270C	ANAB
99-65-0	Water	Dinitrobenzene, 1,3-	8270C	ANAB
99-65-0	Soil	Dinitrobenzene, 1,3-	8270D	ANAB
99-65-0	Water	Dinitrobenzene, 1,3-	8270D	ANAB
51-28-5	Water	Dinitrophenol, 2,4-	625	ANAB
51-28-5	Soil	Dinitrophenol, 2,4-	8270C	ANAB
51-28-5	Water	Dinitrophenol, 2,4-	8270C	ANAB
51-28-5	Soil	Dinitrophenol, 2,4-	8270D	ANAB
51-28-5	Water	Dinitrophenol, 2,4-	8270D	ANAB
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	625	ANAB
121-14-2	Soil	Dinitrotoluene, 2,4- (2,4-DNT)	8270C	ANAB
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	8270C	ANAB
121-14-2	Soil	Dinitrotoluene, 2,4- (2,4-DNT)	8270D	ANAB
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	8270D	ANAB
121-14-2	Soil	Dinitrotoluene, 2,4- (2,4-DNT)	8330A	ANAB
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	8330A	ANAB
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	8330B	ANAB
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	625	ANAB
606-20-2	Soil	Dinitrotoluene, 2,6- (2,6-DNT)	8270C	ANAB
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	8270C	ANAB
606-20-2	Soil	Dinitrotoluene, 2,6- (2,6-DNT)	8270D	ANAB
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	8270D	ANAB
606-20-2	Soil	Dinitrotoluene, 2,6- (2,6-DNT)	8330A	ANAB
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	8330A	ANAB
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	8330B	ANAB

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
35572-78-2	Soil	Dinitrotoluene, 2-Amino-4,6-	8330A	ANAB
35572-78-2	Water	Dinitrotoluene, 2-Amino-4,6-	8330A	ANAB
35572-78-2	Water	Dinitrotoluene, 2-Amino-4,6-	8330B	ANAB
19406-51-0	Soil	Dinitrotoluene, 4-Amino-2,6-	8330A	ANAB
19406-51-0	Water	Dinitrotoluene, 4-Amino-2,6-	8330A	ANAB
19406-51-0	Water	Dinitrotoluene, 4-Amino-2,6-	8330B	ANAB
123-91-1	Soil	Dioxane, 1,4-	8260B	ANAB
123-91-1	Water	Dioxane, 1,4-	8260B	ANAB
123-91-1	Soil	Dioxane, 1,4-	8260B-SIM	ANAB
123-91-1	Water	Dioxane, 1,4-	8260B-SIM	ANAB
123-91-1	Soil	Dioxane, 1,4-	8260C	ANAB
123-91-1	Water	Dioxane, 1,4-	8260C	ANAB
123-91-1	Soil	Dioxane, 1,4-	8260C-SIM	ANAB
123-91-1	Water	Dioxane, 1,4-	8260C-SIM	ANAB
123-91-1	Soil	Dioxane, 1,4-	8270C-SIM	ANAB
123-91-1	Water	Dioxane, 1,4-	8270C-SIM	ANAB
123-91-1	Soil	Dioxane, 1,4-	8270D-SIM	ANAB
123-91-1	Water	Dioxane, 1,4-	8270D-SIM	ANAB
123-91-1	Air	Dioxane, 1,4-	TO-15	ANAB
115-29-7	Water	Endosulfan (Endosulfan I + Endosulfan II)	608	ANAB
115-29-7	Soil	Endosulfan (Endosulfan I + Endosulfan II)	8081A	ANAB
115-29-7	Water	Endosulfan (Endosulfan I + Endosulfan II)	8081A	ANAB
115-29-7	Soil	Endosulfan (Endosulfan I + Endosulfan II)	8081B	ANAB
115-29-7	Water	Endosulfan (Endosulfan I + Endosulfan II)	8081B	ANAB
959-98-8	Water	Endosulfan I	608	ANAB
959-98-8	Soil	Endosulfan I	8081	ANAB
959-98-8	Water	Endosulfan I	8081	ANAB
33213-65-9	Water	Endosulfan II	608	ANAB
33213-65-9	Soil	Endosulfan II	8081	ANAB
33213-65-9	Water	Endosulfan II	8081	ANAB
1031-07-8	Water	Endosulfan sulfate	608	ANAB
1031-07-8	Soil	Endosulfan sulfate	8081	ANAB
1031-07-8	Water	Endosulfan sulfate	8081	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
72-20-8	Water	Endrin	608	ANAB
72-20-8	Soil	Endrin	8081A	ANAB
72-20-8	Water	Endrin	8081A	ANAB
72-20-8	Soil	Endrin	8081B	ANAB
72-20-8	Water	Endrin	8081B	ANAB
75-00-3	Soil	Ethyl Chloride	8260B	ANAB
75-00-3	Water	Ethyl Chloride	8260B	ANAB
75-00-3	Soil	Ethyl Chloride	8260C	ANAB
75-00-3	Water	Ethyl Chloride	8260C	ANAB
75-00-3	Air	Ethyl Chloride	TO-15	ANAB
100-41-4	Water	Ethylbenzene	524.2	ANAB
100-41-4	Water	Ethylbenzene	624	ANAB
100-41-4	Soil	Ethylbenzene	8260B	ANAB
100-41-4	Water	Ethylbenzene	8260B	ANAB
100-41-4	Soil	Ethylbenzene	8260C	ANAB
100-41-4	Water	Ethylbenzene	8260C	ANAB
100-41-4	Air	Ethylbenzene	TO-15	ANAB
107-21-1	Soil	Ethylene Glycol	8015B	ANAB
107-21-1	Water	Ethylene Glycol	8015B	ANAB
107-21-1	Soil	Ethylene Glycol	8015C	ANAB
107-21-1	Water	Ethylene Glycol	8015C	ANAB
206-44-0	Water	Fluoranthene	625	ANAB
206-44-0	Soil	Fluoranthene	8310	ANAB
206-44-0	Water	Fluoranthene	8310	ANAB
206-44-0	Soil	Fluoranthene	8270C	ANAB
206-44-0	Water	Fluoranthene	8270C	ANAB
206-44-0	Soil	Fluoranthene	8270C-SIM	ANAB
206-44-0	Water	Fluoranthene	8270C-SIM	ANAB
206-44-0	Soil	Fluoranthene	8270D	ANAB
206-44-0	Water	Fluoranthene	8270D	ANAB
206-44-0	Soil	Fluoranthene	8270D-SIM	ANAB
206-44-0	Water	Fluoranthene	8270D-SIM	ANAB
86-73-7	Water	Fluorene	625	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
86-73-7	Soil	Fluorene	8310	ANAB
86-73-7	Water	Fluorene	8310	ANAB
86-73-7	Soil	Fluorene	8270C	ANAB
86-73-7	Water	Fluorene	8270C	ANAB
86-73-7	Soil	Fluorene	8270C-SIM	ANAB
86-73-7	Water	Fluorene	8270C-SIM	ANAB
86-73-7	Soil	Fluorene	8270D	ANAB
86-73-7	Water	Fluorene	8270D	ANAB
86-73-7	Soil	Fluorene	8270D-SIM	ANAB
86-73-7	Water	Fluorene	8270D-SIM	ANAB
N/A	Soil	Gasoline Range Organics (C6 – C10)	AK 101	ANAB
N/A	Water	Gasoline Range Organics (C6 – C10)	AK 101	ANAB
76-44-8	Water	Heptachlor	608	ANAB
76-44-8	Soil	Heptachlor	8081A	ANAB
76-44-8	Water	Heptachlor	8081A	ANAB
76-44-8	Soil	Heptachlor	8081B	ANAB
76-44-8	Water	Heptachlor	8081B	ANAB
1024-57-3	Water	Heptachlor Epoxide	608	ANAB
1024-57-3	Soil	Heptachlor Epoxide	8081A	ANAB
1024-57-3	Water	Heptachlor Epoxide	8081A	ANAB
1024-57-3	Soil	Heptachlor Epoxide	8081B	ANAB
1024-57-3	Water	Heptachlor Epoxide	8081B	ANAB
118-74-1	Water	Hexachlorobenzene	625	ANAB
118-74-1	Soil	Hexachlorobenzene	8270C	ANAB
118-74-1	Water	Hexachlorobenzene	8270C	ANAB
118-74-1	Soil	Hexachlorobenzene	8270C-SIM	ANAB
118-74-1	Water	Hexachlorobenzene	8270C-SIM	ANAB
118-74-1	Soil	Hexachlorobenzene	8270D	ANAB
118-74-1	Water	Hexachlorobenzene	8270D	ANAB
118-74-1	Soil	Hexachlorobenzene	8270D-SIM	ANAB
118-74-1	Water	Hexachlorobenzene	8270D-SIM	ANAB
87-68-3	Water	Hexachlorobutadiene	524.2	ANAB
87-68-3	Water	Hexachlorobutadiene	625	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
87-68-3	Soil	Hexachlorobutadiene	8260B	ANAB
87-68-3	Water	Hexachlorobutadiene	8260B	ANAB
87-68-3	Soil	Hexachlorobutadiene	8260C	ANAB
87-68-3	Water	Hexachlorobutadiene	8260C	ANAB
87-68-3	Soil	Hexachlorobutadiene	8270C	ANAB
87-68-3	Water	Hexachlorobutadiene	8270C	ANAB
87-68-3	Soil	Hexachlorobutadiene	8270D	ANAB
87-68-3	Water	Hexachlorobutadiene	8270D	ANAB
319-84-6	Water	Hexachlorocyclohexane, Alpha- (α-BHC)	608	ANAB
319-84-6	Soil	Hexachlorocyclohexane, Alpha- (α-BHC)	8081A	ANAB
319-84-6	Water	Hexachlorocyclohexane, Alpha- (α-BHC)	8081A	ANAB
319-84-6	Soil	Hexachlorocyclohexane, Alpha- (α-BHC)	8081B	ANAB
319-84-6	Water	Hexachlorocyclohexane, Alpha- (α-BHC)	8081B	ANAB
319-85-7	Water	Hexachlorocyclohexane, Beta- (β-BHC)	608	ANAB
319-85-7	Soil	Hexachlorocyclohexane, Beta- (β-BHC)	8081A	ANAB
319-85-7	Water	Hexachlorocyclohexane, Beta- (β-BHC)	8081A	ANAB
319-85-7	Soil	Hexachlorocyclohexane, Beta- (β-BHC)	8081B	ANAB
319-85-7	Water	Hexachlorocyclohexane, Beta- (β-BHC)	8081B	ANAB
319-86-8	Water	Hexachlorocyclohexane, Delta- (δ-BHC)	608	ANAB
319-86-8	Soil	Hexachlorocyclohexane, Delta- (δ-BHC)	8081A	ANAB
319-86-8	Water	Hexachlorocyclohexane, Delta- (δ-BHC)	8081A	ANAB
319-86-8	Soil	Hexachlorocyclohexane, Delta- (δ-BHC)	8081B	ANAB
319-86-8	Water	Hexachlorocyclohexane, Delta- (δ-BHC)	8081B	ANAB
58-89-9	Water	Hexachlorocyclohexane, Gamma- (Lindane)	608	ANAB
58-89-9	Soil	Hexachlorocyclohexane, Gamma- (Lindane)	8081A	ANAB
58-89-9	Water	Hexachlorocyclohexane, Gamma- (Lindane)	8081A	ANAB
58-89-9	Soil	Hexachlorocyclohexane, Gamma- (Lindane)	8081B	ANAB
58-89-9	Water	Hexachlorocyclohexane, Gamma- (Lindane)	8081B	ANAB
77-47-4	Soil	Hexachlorocyclopentadiene	8270C	ANAB
77-47-4	Water	Hexachlorocyclopentadiene	8270C	ANAB
77-47-4	Soil	Hexachlorocyclopentadiene	8270D	ANAB
77-47-4	Water	Hexachlorocyclopentadiene	8270D	ANAB
67-72-1	Soil	Hexachloroethane	8270C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
67-72-1	Water	Hexachloroethane	8270C	ANAB
67-72-1	Soil	Hexachloroethane	8270D	ANAB
67-72-1	Water	Hexachloroethane	8270D	ANAB
121-82-4	Soil	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8330A	ANAB
121-82-4	Water	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8330A	ANAB
121-82-4	Water	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8330B	ANAB
110-54-3	Air	Hexane, N-	TO-15	ANAB
591-78-6	Soil	Hexanone, 2-	8260B	ANAB
591-78-6	Water	Hexanone, 2-	8260B	ANAB
591-78-6	Soil	Hexanone, 2-	8260C	ANAB
591-78-6	Water	Hexanone, 2-	8260C	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	625	ANAB
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8310	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8310	ANAB
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270C	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270C	ANAB
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270C-SIM	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270C-SIM	ANAB
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270D	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270D	ANAB
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270D-SIM	ANAB
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270D-SIM	ANAB
78-59-1	Water	Isophorone	625	ANAB
78-59-1	Soil	Isophorone	8270C	ANAB
78-59-1	Water	Isophorone	8270C	ANAB
78-59-1	Soil	Isophorone	8270D	ANAB
78-59-1	Water	Isophorone	8270D	ANAB
67-63-0	Soil	Isopropanol	8260B	ANAB
67-63-0	Water	Isopropanol	8260B	ANAB
67-63-0	Soil	Isopropanol	8260C	ANAB
67-63-0	Water	Isopropanol	8260C	ANAB
7439-92-1	Water	Lead, Total	200.7	ANAB
7439-92-1	Water	Lead, Total	200.8	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
7439-92-1	Soil	Lead, Total	6010B	ANAB
7439-92-1	Water	Lead, Total	6010B	ANAB
7439-92-1	Soil	Lead, Total	6010C	ANAB
7439-92-1	Water	Lead, Total	6010C	ANAB
7439-92-1	Soil	Lead, Total	6020A	ANAB
7439-92-1	Water	Lead, Total	6020A	ANAB
7439-92-1	Water	Lead, Total	6020B	ANAB
7439-97-6	Water	Mercury (elemental)	245.1	ANAB
7439-97-6	Water	Mercury (elemental)	7470A	ANAB
7439-97-6	Soil	Mercury (elemental)	7471A	ANAB
7439-97-6	Soil	Mercury (elemental)	7471B	ANAB
67-56-1	Soil	Methanol	8015B	ANAB
67-56-1	Water	Methanol	8015B	ANAB
67-56-1	Soil	Methanol	8015C	ANAB
67-56-1	Water	Methanol	8015C	ANAB
72-43-5	Water	Methoxychlor	608	ANAB
72-43-5	Soil	Methoxychlor	8081A	ANAB
72-43-5	Water	Methoxychlor	8081A	ANAB
72-43-5	Soil	Methoxychlor	8081B	ANAB
72-43-5	Water	Methoxychlor	8081B	ANAB
78-93-3	Soil	Methyl Ethyl Ketone (2-Butanone)	8260B	ANAB
78-93-3	Water	Methyl Ethyl Ketone (2-Butanone)	8260B	ANAB
78-93-3	Soil	Methyl Ethyl Ketone (2-Butanone)	8260C	ANAB
78-93-3	Water	Methyl Ethyl Ketone (2-Butanone)	8260C	ANAB
108-10-1	Soil	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260B	ANAB
108-10-1	Water	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260B	ANAB
108-10-1	Soil	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260C	ANAB
108-10-1	Water	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260C	ANAB
1634-04-4	Water	Methyl tert-Butyl Ether (MTBE)	524.2	ANAB
1634-04-4	Water	Methyl tert-Butyl Ether (MTBE)	624	ANAB
1634-04-4	Soil	Methyl tert-Butyl Ether (MTBE)	8260B	ANAB
1634-04-4	Water	Methyl tert-Butyl Ether (MTBE)	8260B	ANAB
1634-04-4	Soil	Methyl tert-Butyl Ether (MTBE)	8260C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
1634-04-4	Water	Methyl tert-Butyl Ether (MTBE)	8260C	ANAB
1634-04-4	Air	Methyl tert-Butyl Ether (MTBE)	TO-15	ANAB
75-09-2	Water	Methylene Chloride	524.2	ANAB
75-09-2	Water	Methylene Chloride	624	ANAB
75-09-2	Soil	Methylene Chloride	8260B	ANAB
75-09-2	Water	Methylene Chloride	8260B	ANAB
75-09-2	Soil	Methylene Chloride	8260C	ANAB
75-09-2	Water	Methylene Chloride	8260C	ANAB
75-09-2	Air	Methylene Chloride	TO-15	ANAB
90-12-0	Soil	Methylnaphthalene, 1-	8310	ANAB
90-12-0	Water	Methylnaphthalene, 1-	8310	ANAB
90-12-0	Soil	Methylnaphthalene, 1-	8270C	ANAB
90-12-0	Water	Methylnaphthalene, 1-	8270C	ANAB
90-12-0	Soil	Methylnaphthalene, 1-	8270C-SIM	ANAB
90-12-0	Water	Methylnaphthalene, 1-	8270C-SIM	ANAB
90-12-0	Soil	Methylnaphthalene, 1-	8270D	ANAB
90-12-0	Water	Methylnaphthalene, 1-	8270D	ANAB
90-12-0	Soil	Methylnaphthalene, 1-	8270D-SIM	ANAB
90-12-0	Water	Methylnaphthalene, 1-	8270D-SIM	ANAB
91-57-6	Soil	Methylnaphthalene, 2-	8310	ANAB
91-57-6	Water	Methylnaphthalene, 2-	8310	ANAB
91-57-6	Soil	Methylnaphthalene, 2-	8270C	ANAB
91-57-6	Water	Methylnaphthalene, 2-	8270C	ANAB
91-57-6	Soil	Methylnaphthalene, 2-	8270C-SIM	ANAB
91-57-6	Water	Methylnaphthalene, 2-	8270C-SIM	ANAB
91-57-6	Soil	Methylnaphthalene, 2-	8270D	ANAB
91-57-6	Water	Methylnaphthalene, 2-	8270D	ANAB
91-57-6	Soil	Methylnaphthalene, 2-	8270D-SIM	ANAB
91-57-6	Water	Methylnaphthalene, 2-	8270D-SIM	ANAB
91-20-3	Water	Naphthalene	524.2	ANAB
91-20-3	Water	Naphthalene	625	ANAB
91-20-3	Soil	Naphthalene	8310	ANAB
91-20-3	Water	Naphthalene	8310	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
91-20-3	Soil	Naphthalene	8260B	ANAB
91-20-3	Water	Naphthalene	8260B	ANAB
91-20-3	Soil	Naphthalene	8260C	ANAB
91-20-3	Water	Naphthalene	8260C	ANAB
91-20-3	Soil	Naphthalene	8270C	ANAB
91-20-3	Water	Naphthalene	8270C	ANAB
91-20-3	Soil	Naphthalene	8270C-SIM	ANAB
91-20-3	Water	Naphthalene	8270C-SIM	ANAB
91-20-3	Soil	Naphthalene	8270D	ANAB
91-20-3	Water	Naphthalene	8270D	ANAB
91-20-3	Soil	Naphthalene	8270D-SIM	ANAB
91-20-3	Water	Naphthalene	8270D-SIM	ANAB
7440-02-0	Water	Nickel, Total	200.7	ANAB
7440-02-0	Water	Nickel, Total	200.8	ANAB
7440-02-0	Soil	Nickel, Total	6010B	ANAB
7440-02-0	Water	Nickel, Total	6010B	ANAB
7440-02-0	Soil	Nickel, Total	6010C	ANAB
7440-02-0	Water	Nickel, Total	6010C	ANAB
7440-02-0	Soil	Nickel, Total	6020A	ANAB
7440-02-0	Water	Nickel, Total	6020A	ANAB
7440-02-0	Water	Nickel, Total	6020B	ANAB
98-95-3	Water	Nitrobenzene	625	ANAB
98-95-3	Soil	Nitrobenzene	8270C	ANAB
98-95-3	Water	Nitrobenzene	8270C	ANAB
98-95-3	Soil	Nitrobenzene	8270D	ANAB
98-95-3	Water	Nitrobenzene	8270D	ANAB
98-95-3	Soil	Nitrobenzene	8330A	ANAB
98-95-3	Water	Nitrobenzene	8330A	ANAB
98-95-3	Water	Nitrobenzene	8330B	ANAB
55-63-0	Soil	Nitroglycerin	8330A	ANAB
55-63-0	Water	Nitroglycerin	8330A	ANAB
62-75-9	Water	Nitrosodimethylamine, N-	625	ANAB
62-75-9	Soil	Nitrosodimethylamine, N-	8270C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
62-75-9	Water	Nitrosodimethylamine, N-	8270C	ANAB
62-75-9	Soil	Nitrosodimethylamine, N-	8270C-SIM	ANAB
62-75-9	Water	Nitrosodimethylamine, N-	8270C-SIM	ANAB
62-75-9	Soil	Nitrosodimethylamine, N-	8270D	ANAB
62-75-9	Water	Nitrosodimethylamine, N-	8270D	ANAB
62-75-9	Soil	Nitrosodimethylamine, N-	8270D-SIM	ANAB
62-75-9	Water	Nitrosodimethylamine, N-	8270D-SIM	ANAB
621-64-7	Water	Nitroso-di-N-propylamine, N-	625	ANAB
621-64-7	Soil	Nitroso-di-N-propylamine, N-	8270C	ANAB
621-64-7	Water	Nitroso-di-N-propylamine, N-	8270C	ANAB
621-64-7	Soil	Nitroso-di-N-propylamine, N-	8270C-SIM	ANAB
621-64-7	Water	Nitroso-di-N-propylamine, N-	8270C-SIM	ANAB
621-64-7	Soil	Nitroso-di-N-propylamine, N-	8270D	ANAB
621-64-7	Water	Nitroso-di-N-propylamine, N-	8270D	ANAB
621-64-7	Soil	Nitroso-di-N-propylamine, N-	8270D-SIM	ANAB
621-64-7	Water	Nitroso-di-N-propylamine, N-	8270D-SIM	ANAB
86-30-6	Water	Nitrosodiphenylamine, N-	625	ANAB
86-30-6	Soil	Nitrosodiphenylamine, N-	8270C	ANAB
86-30-6	Water	Nitrosodiphenylamine, N-	8270C	ANAB
86-30-6	Soil	Nitrosodiphenylamine, N-	8270D	ANAB
86-30-6	Water	Nitrosodiphenylamine, N-	8270D	ANAB
99-08-1	Soil	Nitrotoluene, m-	8330A	ANAB
99-08-1	Water	Nitrotoluene, m-	8330A	ANAB
99-08-1	Water	Nitrotoluene, m-	8330B	ANAB
88-72-2	Soil	Nitrotoluene, o-	8330A	ANAB
88-72-2	Water	Nitrotoluene, o-	8330A	ANAB
88-72-2	Water	Nitrotoluene, o-	8330B	ANAB
99-99-0	Soil	Nitrotoluene, p-	8330A	ANAB
99-99-0	Water	Nitrotoluene, p-	8330A	ANAB
99-99-0	Water	Nitrotoluene, p-	8330B	ANAB
2691-41-0	Soil	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	8330A	ANAB
2691-41-0	Water	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	8330A	ANAB
2691-41-0	Water	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	8330B	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
117-84-0	Soil	Octyl Phthalate, di-N-	8270C	ANAB
117-84-0	Water	Octyl Phthalate, di-N-	8270C	ANAB
117-84-0	Soil	Octyl Phthalate, di-N-	8270C-SIM	ANAB
117-84-0	Water	Octyl Phthalate, di-N-	8270C-SIM	ANAB
117-84-0	Soil	Octyl Phthalate, di-N-	8270D	ANAB
117-84-0	Water	Octyl Phthalate, di-N-	8270D	ANAB
117-84-0	Soil	Octyl Phthalate, di-N-	8270D-SIM	ANAB
117-84-0	Water	Octyl Phthalate, di-N-	8270D-SIM	ANAB
12674-11-2	Water	PCB - Aroclor-1016	608	ANAB
12674-11-2	Soil	PCB - Aroclor-1016	8082A	ANAB
12674-11-2	Water	PCB - Aroclor-1016	8082A	ANAB
11104-28-2	Water	PCB - Aroclor-1221	608	ANAB
11104-28-2	Soil	PCB - Aroclor-1221	8082A	ANAB
11104-28-2	Water	PCB - Aroclor-1221	8082A	ANAB
11141-16-5	Water	PCB - Aroclor-1232	608	ANAB
11141-16-5	Soil	PCB - Aroclor-1232	8082A	ANAB
11141-16-5	Water	PCB - Aroclor-1232	8082A	ANAB
53469-21-9	Water	PCB - Aroclor-1242	608	ANAB
53469-21-9	Soil	PCB - Aroclor-1242	8082A	ANAB
53469-21-9	Water	PCB - Aroclor-1242	8082A	ANAB
12672-29-6	Water	PCB - Aroclor-1248	608	ANAB
12672-29-6	Soil	PCB - Aroclor-1248	8082A	ANAB
12672-29-6	Water	PCB - Aroclor-1248	8082A	ANAB
11097-69-1	Water	PCB - Aroclor-1254	608	ANAB
11097-69-1	Soil	PCB - Aroclor-1254	8082A	ANAB
11097-69-1	Water	PCB - Aroclor-1254	8082A	ANAB
11096-82-5	Water	PCB - Aroclor-1260	608	ANAB
11096-82-5	Soil	PCB - Aroclor-1260	8082A	ANAB
11096-82-5	Water	PCB - Aroclor-1260	8082A	ANAB
37324-23-5	Soil	PCB - Aroclor-1262	8082A	ANAB
37324-23-5	Water	PCB - Aroclor-1262	8082A	ANAB
11100-14-4	Soil	PCB - Aroclor-1268	8082A	ANAB
11100-14-4	Water	PCB - Aroclor-1268	8082A	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
N/A	Water	PCB – Total	608	ANAB
N/A	Soil	PCB – Total	8082A	ANAB
87-86-5	Water	Pentachlorophenol	625	ANAB
87-86-5	Soil	Pentachlorophenol	8151A	ANAB
87-86-5	Water	Pentachlorophenol	8151A	ANAB
87-86-5	Soil	Pentachlorophenol	8270C	ANAB
87-86-5	Water	Pentachlorophenol	8270C	ANAB
87-86-5	Soil	Pentachlorophenol	8270C-SIM	ANAB
87-86-5	Water	Pentachlorophenol	8270C-SIM	ANAB
87-86-5	Soil	Pentachlorophenol	8270D	ANAB
87-86-5	Water	Pentachlorophenol	8270D	ANAB
87-86-5	Soil	Pentachlorophenol	8270D-SIM	ANAB
87-86-5	Water	Pentachlorophenol	8270D-SIM	ANAB
78-11-5	Soil	Pentaerythritol tetranitrate (PETN)	8330A	ANAB
78-11-5	Water	Pentaerythritol tetranitrate (PETN)	8330A	ANAB
14797-73-0	Water	Perchlorate	314	ANAB
14797-73-0	Soil	Perchlorate	6850	ANAB
14797-73-0	Water	Perchlorate	6850	ANAB
85-01-8	Water	Phenanthrene	625	ANAB
85-01-8	Soil	Phenanthrene	8310	ANAB
85-01-8	Water	Phenanthrene	8310	ANAB
85-01-8	Soil	Phenanthrene	8270C	ANAB
85-01-8	Water	Phenanthrene	8270C	ANAB
85-01-8	Soil	Phenanthrene	8270C-SIM	ANAB
85-01-8	Water	Phenanthrene	8270C-SIM	ANAB
85-01-8	Soil	Phenanthrene	8270D	ANAB
85-01-8	Water	Phenanthrene	8270D	ANAB
85-01-8	Soil	Phenanthrene	8270D-SIM	ANAB
85-01-8	Water	Phenanthrene	8270D-SIM	ANAB
108-95-2	Water	Phenol	625	ANAB
108-95-2	Soil	Phenol	8270C	ANAB
108-95-2	Water	Phenol	8270C	ANAB
108-95-2	Soil	Phenol	8270C-SIM	ANAB

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
108-95-2	Water	Phenol	8270C-SIM	ANAB
108-95-2	Soil	Phenol	8270D	ANAB
108-95-2	Water	Phenol	8270D	ANAB
108-95-2	Soil	Phenol	8270D-SIM	ANAB
108-95-2	Water	Phenol	8270D-SIM	ANAB
103-65-1	Water	Propyl benzene	524.2	ANAB
103-65-1	Soil	Propyl benzene	8260B	ANAB
103-65-1	Water	Propyl benzene	8260B	ANAB
103-65-1	Soil	Propyl benzene	8260C	ANAB
103-65-1	Water	Propyl benzene	8260C	ANAB
129-00-0	Water	Pyrene	625	ANAB
129-00-0	Soil	Pyrene	8310	ANAB
129-00-0	Water	Pyrene	8310	ANAB
129-00-0	Soil	Pyrene	8270C	ANAB
129-00-0	Water	Pyrene	8270C	ANAB
129-00-0	Soil	Pyrene	8270C-SIM	ANAB
129-00-0	Water	Pyrene	8270C-SIM	ANAB
129-00-0	Soil	Pyrene	8270D	ANAB
129-00-0	Water	Pyrene	8270D	ANAB
129-00-0	Soil	Pyrene	8270D-SIM	ANAB
129-00-0	Water	Pyrene	8270D-SIM	ANAB
N/A	Soil	Residual Range Organics (C25 – C36)	AK 103	ANAB
N/A	Water	Residual Range Organics (C25 – C36)	AK 103	ANAB
7782-49-2	Soil	Selenium	6010B	ANAB
7782-49-2	Water	Selenium	6010B	ANAB
7782-49-2	Soil	Selenium	6010C	ANAB
7782-49-2	Water	Selenium	6010C	ANAB
7782-49-2	Soil	Selenium	6020A	ANAB
7782-49-2	Water	Selenium	6020A	ANAB
7782-49-2	Water	Selenium	6020B	ANAB
7440-22-4	Soil	Silver	6010B	ANAB
7440-22-4	Water	Silver	6010B	ANAB
7440-22-4	Soil	Silver	6010C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
7440-22-4	Water	Silver	6010C	ANAB
100-42-5	Water	Styrene	524.2	ANAB
100-42-5	Water	Styrene	624	ANAB
100-42-5	Soil	Styrene	8260B	ANAB
100-42-5	Water	Styrene	8260B	ANAB
100-42-5	Soil	Styrene	8260C	ANAB
100-42-5	Water	Styrene	8260C	ANAB
100-42-5	Air	Styrene	TO-15	ANAB
630-20-6	Water	Tetrachloroethane, 1,1,1,2-	524.2	ANAB
630-20-6	Soil	Tetrachloroethane, 1,1,1,2-	8260B	ANAB
630-20-6	Water	Tetrachloroethane, 1,1,1,2-	8260B	ANAB
630-20-6	Soil	Tetrachloroethane, 1,1,1,2-	8260C	ANAB
630-20-6	Water	Tetrachloroethane, 1,1,1,2-	8260C	ANAB
79-34-5	Water	Tetrachloroethane, 1,1,2,2-	524.2	ANAB
79-34-5	Soil	Tetrachloroethane, 1,1,2,2-	8260B	ANAB
79-34-5	Water	Tetrachloroethane, 1,1,2,2-	8260B	ANAB
79-34-5	Soil	Tetrachloroethane, 1,1,2,2-	8260C	ANAB
79-34-5	Water	Tetrachloroethane, 1,1,2,2-	8260C	ANAB
79-34-5	Air	Tetrachloroethane, 1,1,2,2-	TO-15	ANAB
127-18-4	Water	Tetrachloroethylene	524.2	ANAB
127-18-4	Water	Tetrachloroethylene	624	ANAB
127-18-4	Soil	Tetrachloroethylene	8260B	ANAB
127-18-4	Water	Tetrachloroethylene	8260B	ANAB
127-18-4	Soil	Tetrachloroethylene	8260C	ANAB
127-18-4	Water	Tetrachloroethylene	8260C	ANAB
127-18-4	Air	Tetrachloroethylene	TO-15	ANAB
479-45-8	Soil	Tetryl (Trinitrophenylmethylnitramine)	8330A	ANAB
479-45-8	Water	Tetryl (Trinitrophenylmethylnitramine)	8330A	ANAB
479-45-8	Water	Tetryl (Trinitrophenylmethylnitramine)	8330B	ANAB
7440-28-0	Water	Thallium, Total	200.7	ANAB
7440-28-0	Water	Thallium, Total	200.8	ANAB
7440-28-0	Soil	Thallium, Total	6010B	ANAB
7440-28-0	Water	Thallium, Total	6010B	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
7440-28-0	Soil	Thallium, Total	6010C	ANAB
7440-28-0	Water	Thallium, Total	6010C	ANAB
7440-28-0	Soil	Thallium, Total	6020A	ANAB
7440-28-0	Water	Thallium, Total	6020A	ANAB
7440-28-0	Water	Thallium, Total	6020B	ANAB
108-88-3	Water	Toluene	524.2	ANAB
108-88-3	Water	Toluene	624	ANAB
108-88-3	Soil	Toluene	8260B	ANAB
108-88-3	Water	Toluene	8260B	ANAB
108-88-3	Soil	Toluene	8260C	ANAB
108-88-3	Water	Toluene	8260C	ANAB
108-88-3	Air	Toluene	TO-15	ANAB
N/A	Water	Total Organic Carbon	9060	ANAB
N/A	Water	Total Organic Carbon	SM 5310 B	ANAB
N/A	Soil	Total Organic Carbon	Walkley Black	ANAB
8001-35-2	Soil	Toxaphene	8081A	ANAB
8001-35-2	Water	Toxaphene	8081A	ANAB
8001-35-2	Soil	Toxaphene	8081B	ANAB
8001-35-2	Water	Toxaphene	8081B	ANAB
76-13-1	Soil	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260B	ANAB
76-13-1	Water	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260B	ANAB
76-13-1	Soil	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260C	ANAB
76-13-1	Water	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260C	ANAB
87-61-6	Water	Trichlorobenzene, 1,2,3-	524.2	ANAB
87-61-6	Soil	Trichlorobenzene, 1,2,3-	8260B	ANAB
87-61-6	Water	Trichlorobenzene, 1,2,3-	8260B	ANAB
87-61-6	Soil	Trichlorobenzene, 1,2,3-	8260C	ANAB
87-61-6	Water	Trichlorobenzene, 1,2,3-	8260C	ANAB
120-82-1	Water	Trichlorobenzene, 1,2,4-	524.2	ANAB
120-82-1	Water	Trichlorobenzene, 1,2,4-	624	ANAB
120-82-1	Water	Trichlorobenzene, 1,2,4-	625	ANAB
120-82-1	Soil	Trichlorobenzene, 1,2,4-	8260B	ANAB
120-82-1	Water	Trichlorobenzene, 1,2,4-	8260B	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
120-82-1	Soil	Trichlorobenzene, 1,2,4-	8260C	ANAB
120-82-1	Water	Trichlorobenzene, 1,2,4-	8260C	ANAB
120-82-1	Air	Trichlorobenzene, 1,2,4-	TO-15	ANAB
71-55-6	Water	Trichloroethane, 1,1,1-	524.2	ANAB
71-55-6	Water	Trichloroethane, 1,1,1-	624	ANAB
71-55-6	Soil	Trichloroethane, 1,1,1-	8260B	ANAB
71-55-6	Water	Trichloroethane, 1,1,1-	8260B	ANAB
71-55-6	Soil	Trichloroethane, 1,1,1-	8260C	ANAB
71-55-6	Water	Trichloroethane, 1,1,1-	8260C	ANAB
71-55-6	Air	Trichloroethane, 1,1,1-	TO-15	ANAB
79-00-5	Water	Trichloroethane, 1,1,2-	524.2	ANAB
79-00-5	Water	Trichloroethane, 1,1,2-	624	ANAB
79-00-5	Soil	Trichloroethane, 1,1,2-	8260B	ANAB
79-00-5	Water	Trichloroethane, 1,1,2-	8260B	ANAB
79-00-5	Soil	Trichloroethane, 1,1,2-	8260C	ANAB
79-00-5	Water	Trichloroethane, 1,1,2-	8260C	ANAB
79-00-5	Air	Trichloroethane, 1,1,2-	TO-15	ANAB
79-01-6	Water	Trichloroethylene	524.2	ANAB
79-01-6	Soil	Trichloroethylene	8260B	ANAB
79-01-6	Water	Trichloroethylene	8260B	ANAB
79-01-6	Soil	Trichloroethylene	8260C	ANAB
79-01-6	Water	Trichloroethylene	8260C	ANAB
79-01-6	Air	Trichloroethylene	TO-15	ANAB
75-69-4	Water	Trichlorofluoromethane	524.2	ANAB
75-69-4	Water	Trichlorofluoromethane	624	ANAB
75-69-4	Soil	Trichlorofluoromethane	8260B	ANAB
75-69-4	Water	Trichlorofluoromethane	8260B	ANAB
75-69-4	Soil	Trichlorofluoromethane	8260C	ANAB
75-69-4	Water	Trichlorofluoromethane	8260C	ANAB
75-69-4	Air	Trichlorofluoromethane	TO-15	ANAB
95-95-4	Soil	Trichlorophenol, 2,4,5-	8270C	ANAB
95-95-4	Water	Trichlorophenol, 2,4,5-	8270C	ANAB
95-95-4	Soil	Trichlorophenol, 2,4,5-	8270C-SIM	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
95-95-4	Water	Trichlorophenol, 2,4,5-	8270C-SIM	ANAB
95-95-4	Soil	Trichlorophenol, 2,4,5-	8270D	ANAB
95-95-4	Water	Trichlorophenol, 2,4,5-	8270D	ANAB
95-95-4	Soil	Trichlorophenol, 2,4,5-	8270D-SIM	ANAB
95-95-4	Water	Trichlorophenol, 2,4,5-	8270D-SIM	ANAB
88-06-2	Water	Trichlorophenol, 2,4,6-	625	ANAB
88-06-2	Soil	Trichlorophenol, 2,4,6-	8270C	ANAB
88-06-2	Water	Trichlorophenol, 2,4,6-	8270C	ANAB
88-06-2	Soil	Trichlorophenol, 2,4,6-	8270C-SIM	ANAB
88-06-2	Water	Trichlorophenol, 2,4,6-	8270C-SIM	ANAB
88-06-2	Soil	Trichlorophenol, 2,4,6-	8270D	ANAB
88-06-2	Water	Trichlorophenol, 2,4,6-	8270D	ANAB
88-06-2	Soil	Trichlorophenol, 2,4,6-	8270D-SIM	ANAB
88-06-2	Water	Trichlorophenol, 2,4,6-	8270D-SIM	ANAB
93-76-5	Soil	Trichlorophenoxyacetic Acid, 2,4,5- (2,4,5-T)	8151A	ANAB
93-76-5	Water	Trichlorophenoxyacetic Acid, 2,4,5- (2,4,5-T)	8151A	ANAB
93-72-1	Soil	Trichlorophenoxypropionic acid, 2,4,5- (2,4,5-TP)	8151A	ANAB
93-72-1	Water	Trichlorophenoxypropionic acid, 2,4,5- (2,4,5-TP)	8151A	ANAB
96-18-4	Soil	Trichloropropane, 1,2,3-	8260B	ANAB
96-18-4	Water	Trichloropropane, 1,2,3-	8260B	ANAB
96-18-4	Soil	Trichloropropane, 1,2,3-	8260C	ANAB
96-18-4	Water	Trichloropropane, 1,2,3-	8260C	ANAB
95-63-6	Water	Trimethylbenzene, 1,2,4-	524.2	ANAB
95-63-6	Soil	Trimethylbenzene, 1,2,4-	8260B	ANAB
95-63-6	Water	Trimethylbenzene, 1,2,4-	8260B	ANAB
95-63-6	Soil	Trimethylbenzene, 1,2,4-	8260C	ANAB
95-63-6	Water	Trimethylbenzene, 1,2,4-	8260C	ANAB
95-63-6	Air	Trimethylbenzene, 1,2,4-	TO-15	ANAB
108-67-8	Water	Trimethylbenzene, 1,3,5-	524.2	ANAB
108-67-8	Soil	Trimethylbenzene, 1,3,5-	8260B	ANAB
108-67-8	Water	Trimethylbenzene, 1,3,5-	8260B	ANAB
108-67-8	Soil	Trimethylbenzene, 1,3,5-	8260C	ANAB
108-67-8	Water	Trimethylbenzene, 1,3,5-	8260C	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
108-67-8	Air	Trimethylbenzene, 1,3,5-	TO-15	ANAB
99-35-4	Water	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8270C	ANAB
99-35-4	Soil	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8270D	ANAB
99-35-4	Water	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8270D	ANAB
99-35-4	Soil	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8330A	ANAB
99-35-4	Water	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8330A	ANAB
99-35-4	Water	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8330B	ANAB
99-35-4	Soil	Trinitrobenzene, 1,3,5- (1,3,5-TNB)	8270C	ANAB
118-96-7	Soil	Trinitrotoluene, 2,4,6-	8330A	ANAB
118-96-7	Water	Trinitrotoluene, 2,4,6-	8330A	ANAB
118-96-7	Water	Trinitrotoluene, 2,4,6-	8330B	ANAB
7440-62-2	Water	Vanadium, Total	200.7	ANAB
7440-62-2	Soil	Vanadium, Total	6010B	ANAB
7440-62-2	Water	Vanadium, Total	6010B	ANAB
7440-62-2	Soil	Vanadium, Total	6010C	ANAB
7440-62-2	Water	Vanadium, Total	6010C	ANAB
7440-62-2	Soil	Vanadium, Total	6020A	ANAB
7440-62-2	Water	Vanadium, Total	6020A	ANAB
7440-62-2	Water	Vanadium, Total	6020B	ANAB
108-05-4	Soil	Vinyl Acetate	8260B	ANAB
108-05-4	Water	Vinyl Acetate	8260B	ANAB
108-05-4	Soil	Vinyl Acetate	8260C	ANAB
108-05-4	Water	Vinyl Acetate	8260C	ANAB
108-05-4	Air	Vinyl Acetate	TO-15	ANAB
75-01-4	Water	Vinyl Chloride	524.2	ANAB
75-01-4	Water	Vinyl Chloride	624	ANAB
75-01-4	Soil	Vinyl Chloride	8260B	ANAB
75-01-4	Water	Vinyl Chloride	8260B	ANAB
75-01-4	Soil	Vinyl Chloride	8260C	ANAB
75-01-4	Water	Vinyl Chloride	8260C	ANAB
75-01-4	Air	Vinyl Chloride	TO-15	ANAB
N/A	Water	Xylene, m+p-	524.2	ANAB
N/A	Water	Xylene, m+p-	624	ANAB

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CAS Number	Matrix	Hazardous Substance	Method	Accrediting Body
N/A	Soil	Xylene, m+p-	8260B	ANAB
N/A	Water	Xylene, m+p-	8260B	ANAB
N/A	Soil	Xylene, m+p-	8260C	ANAB
N/A	Water	Xylene, m+p-	8260C	ANAB
95-47-6	Water	Xylene, o-	524.2	ANAB
95-47-6	Water	Xylene, o-	624	ANAB
95-47-6	Soil	Xylene, o-	8260B	ANAB
95-47-6	Water	Xylene, o-	8260B	ANAB
95-47-6	Soil	Xylene, o-	8260C	ANAB
95-47-6	Water	Xylene, o-	8260C	ANAB
95-47-6	Air	Xylene, o-	TO-15	ANAB
1330-20-7	Water	Xylene, Total	624	ANAB
1330-20-7	Soil	Xylene, Total	8260B	ANAB
1330-20-7	Water	Xylene, Total	8260B	ANAB
1330-20-7	Soil	Xylene, Total	8260C	ANAB
1330-20-7	Water	Xylene, Total	8260C	ANAB
1330-20-7	Air	Xylene, Total	TO-15	ANAB
7440-66-6	Water	Zinc, Total	200.7	ANAB
7440-66-6	Water	Zinc, Total	200.8	ANAB
7440-66-6	Soil	Zinc, Total	6010B	ANAB
7440-66-6	Water	Zinc, Total	6010B	ANAB
7440-66-6	Soil	Zinc, Total	6010C	ANAB
7440-66-6	Water	Zinc, Total	6010C	ANAB
7440-66-6	Soil	Zinc, Total	6020A	ANAB
7440-66-6	Water	Zinc, Total	6020A	ANAB
7440-66-6	Water	Zinc, Total	6020B	ANAB

APPENDIX F

Response to Comments

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REVIEW COMMENTS

PROJECT: Nome Tank Site "E" POL Contamination (F10AK0052-11)
DOCUMENT: Draft Groundwater Sampling Work Plan, May 2018

U.S. ARMY CORPS OF ENGINEERS	DATE: June 04, 2018 REVIEWER: D. Shepard (ADEC) PHONE: 907-451-2180	Action taken on comment by:

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)
1	Pg. 2-5, Section 2.2	Concerning the detections of contaminants above the DEC Method Two, Table C groundwater cleanup levels at MW-E1: The MW-E1 has consistently exceeded the Table C cleanup level for DRO. DEC has commented on the exceedances and the potential that this is a separate release point along historic tank farm infrastructure (supported by the 1947 Tank Farm as-built and the 2007 ROST results). The groundwater evaluation in this work plan section is inadequate. DEC is requesting additional soil and groundwater sampling of the area near MW-E1 to determine if a release from buried tank farm infrastructure has occurred and is continuing to occur. The buried infrastructure of the tank farm may still contain contaminants and long term monitoring will not satisfy the DEC requirements under 18 AAC 75.335 for characterizing the release and delineating the extent of contamination. In accordance with 18 AAC 75.330, FUDS needs to identify whether interim actions are needed to address soil contamination and associated tank farm infrastructure. Please add to the previous investigations section to document and address these DEC concerns that were identified in comments for the 2017 Groundwater sampling report. Please add a Figure depicting the Tank Farm Infrastructure as-built.	A/Noted	Based on the 6/7/2018 teleconference between USACE (Will Mangano) and ADEC (Dennis Shepard): USACE intends to decommission MW-E1, reinstall a replacement well in the same location, as well as install another well to the southeast as a replacement well for MW-E2 (destroyed by adjacent mining activities). This work will be completed as part of the ongoing soil remediation effort at the site (currently underway and being conducted by Bethel Environmental Services through FY19). Soil samples will be collected as part of well installation and analyzed for fuel impacts. Per the comment, the following text will be added to the Work Plan: "2.3 As-Built Analysis Based on ADEC comments generated on the 2017 Groundwater Sampling Report (F10AK005211_02.04_0508_a), USACE conducted an updated historical document review and as-built analysis of fuel storage and distribution infrastructure at Nome Tank Site "E". Results of that effort identified multiple appurtenant piping runs and storage structures in the vicinity of the former tank footprint (Figure 2-3). The evaluation of information generated	

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				from that as-built analysis is beyond the scope of this groundwater sampling effort. However, USACE will coordinate future actions to address this new information with the ADEC, landowners, and other pertinent stakeholders as necessary."	
2	Pg. 4-1, Section 4.0	Please ensure that the 2018 monitoring report addresses the DEC concerns expressed in comment 1. Please include available as-built of the historic tank farm infrastructure / UVOST overlays and discuss the exceedances at MW-E1 relative to these information sources. The reporting needs to make recommendations consistent with the site cleanup rules at 18 AAC 75.325 – 18 AAC 75.900.	A/Noted	Please see response to Comment #1	
3	Pg. 5-1, Section 5.0	The current version of 18 AAC 75 is dated November 2017. Please revise.	A	The referenced date will be corrected to November 2017.	
4	Appendix A	Right of Entry document, DACA85-9-14-00039: DEC notes that the Right of Entry will expire in September 2019. DEC recommends that the USACE review the current Tank E remediation schedule and the remaining investigation and assessment tasks that will be required to close the site to determine if the right of entry needs to be revised and/or renewed.	A	USACE will continue to work with the landowners to ensure that the updated ROE reflects the anticipated future course(s) of action at the site.	
5	Appendix C, SOP 04, 2.1	Please reference the ADEC Field Sampling Guidance (August 2017).	A	The reference will be corrected to ADEC Field Sampling Guidance (August 2017).	
6	Appendix E,	It appears that the DEC Laboratory approvals submitted have expired. EMAX laboratories need to renew their DEC approval. Please provide updated Laboratory approval documentation with Final version of the work plan.	A	The updated ADEC Laboratory approvals were issued by ADEC after the Draft Work Plan was	

REVIEW COMMENTS

PROJECT: Nome Tank Site "E" POL Contamination (F10AK0052-11)
DOCUMENT: Draft Groundwater Sampling Work Plan, May 2018

U.S. ARMY CORPS OF ENGINEERS	**DATE:** June 04, 2018 **REVIEWER: D. Shepard (ADEC)** **PHONE: 907-451-2180**	**Action taken on comment by:**

Item No.	**Drawing Sheet No., Spec. Para.**	**COMMENTS**	**REVIEW CONFERENCE** **A - comment accepted** **W - comment withdrawn** **(if neither, explain)**	**CONTRACTOR RESPONSE**	**RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)**
				submitted. These new approvals will be included in the Final Work Plan.	
		-End of Comments-			

ATTACHMENT 2
ADEC QUALIFIED ENVIRONMENTAL PROFESSIONAL RESUMES.

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Moana J. Leirer
Address: 3303 Oregon Drive Apt. 1 Anchorage, Alaska 99517
Phone: 907.351.5359 Email: mleirer39@gmail.com

Objective: To assist in successful management, control, coordination, and execution of environmental projects utilizing my experience in environmental and regulatory knowledge and personal proficiencies to achieve business goals and objectives.

Knowledge, Skills, and Abilities:

- Environmental Remediation and Monitoring
- Excellent Communication Skills
- Planning Documents and Reporting
- Technical Writing
- Remote Site Field Coordination/Logistics
- Environmental Laws and Regulations
- Proposal Preparation and Cost Estimating
- Comprehensive Site Evaluation Phase I/II/IIIs
- Multi-Discipline Team Coordination

Education:

- B.S. Environmental Science – University of Alaska Southeast (May 2005)

Certifications:

- EPA/AHERA Building Inspector Initial 24-Hour (Satori Group) (May 2020)
- 8-Hour HAZWOPER; Refresher, Weston Solutions, Inc. (WESTON) (January 2020)
- Bloodborne Pathogens Training – Refresher, OSHA 29 CFR 1910.1030, WESTON (January 2020)
- First Aid/CPR/AED Training, American Red Cross (2019)
- Alaska Certified Erosion and Sediment Control Lead (AK-CESCL), Alaska General Contractors (December 2019)
- Shipping and Transporting Dangerous Goods-Admin/Field Personnel, Initial, 49 CFR Hazardous Materials Regulations and IATA Dangerous Goods Regulations-Refresher, WESTON (April 2016).
- North Slope Training Cooperative (NSTC), Beacon Occupational Health and Safety Services (July 2016)
- Shipping and Transporting Dangerous Goods-Admin/Field Personnel, Initial, 49 CFR Hazardous Materials Regulations and International Air Transport Association (IATA) Dangerous Goods Regulations WESTON (January 2013).
- Global Harmonization System Hazard Communication Training, 29 CFR 1910.1200 as updated with GHS Requirements, WESTON (2013)
- 8-Hour Managers and Supervisors Course, OSHA 29 CFR 1910.120(e)(4), WESTON (2012)
- 8-Hour Excavation/Trenching Competent Person Training Course, OSHA 20 CFR 1026 Subpart P, WESTON (2012)
- 4-day HazCat™ Field Identification Course, OSHA 29 CFR 1910.120(q) CCR Title 8, Section 5192 & NFPA Standard 472, HazTech Systems Inc. (January 2011)
- 40-Hour HAZWOPER Course – Initial, OSHA 29 CFR 1910.120(e)(3), NANA Training Systems (May 2007)
- 40-Hour EPA Basic Inspection Training Course, National Enforcement Training Institute (2006)
- Fundamental Contaminant Chemistry and Contaminant Chemistry and Transport in Soil and Groundwater, Northwest Environmental Training Center (2006)
- EPA Method 9 Visible Emissions Certification, HMH Consulting (2006)
- Introduction to Environmental Enforcement, Presented in Accordance with State of Alaska Enforcement Criteria, by Western States Hazardous Waste Project (2005)

Employment History:

<u>Senior Project Scientist</u> — March 2020 – Present
Rescon Alaska, LLC
8361 Petersburg Street, Anchorage, Alaska 99507

<u>Senior Project Scientist</u> — May 2012 – March 2020
Weston Solutions, Inc
425 G Street, Anchorage, Alaska 99501

<u>Environmental Scientist III</u> — September 2008 – October 2011
Restoration Science and Engineering
911 W 8th Ave #100, Anchorage, AK 99501

<u>Environmental Scientist II</u> — May 2007 – September 2008
Braunstein Geological & Environmental Services
1042 E 6th Ave, Anchorage, AK 99501

<u>Environmental Program Specialist II</u> — November 2004 – October 2006
Alaska Department of Environmental Conservation
410 Willoughby Ave # 303, Juneau, AK 99801

<u>Sample Control Specialist & Wet Chemistry Analyst</u> — May 2002 – November 2004
Analytica Laboratories Inc.
5438 Shaune Dr, Juneau, AK 99801

Key Projects:

Performance-Based Remediation at JBER and Clear Air Force Station, Alaska, Joint Base Elmendorf-Richardson, AK, U.S. Air Force, Anchorage, AK, AFCEC, **Senior Project Scientist/Technical Field/Lead Author** for Annual CERCLA and State Reports. Supported investigation/remediation and collection of over 200 soil and groundwater samples at 27+ sites contaminated with POL; solvents; and CERCLA- related contamination. Developed UFP-QAPP Work Plans, Optimized Exit Strategy Plans, Site Closure Documents, and authored reports using Hydrocarbon Risk Calculator criteria. As a Technical Field Lead responsibilities included direct oversight of advancement and placement locations for Laser Induced Fluorescence probing to delineate the extent of contamination in subsurface soils for numerous contaminated sites on JBER. Currently responsible for the management of the long-term groundwater sampling program on JBER. [6-12 to Present; WESTON]

Fort Wainwright Environmental Investigations at Various Sites, Fairbanks, AK, U.S. Army Corps of Engineers, Lead Field Scientist. Conducted preliminary site investigations, RI/FS, and data gap analysis to determine extent of contamination at ammunition-related and POL contaminated sites. Delineated, collected 100 samples for soil and groundwater surveyed, and used GIS mapping to determine extent of contamination. Performed monitoring well development and groundwater sampling of approximately 30 monitoring wells, laboratory coordination, and sample shipping; and primary final reporting support. As a result, the client was able to establish a baseline for contamination in various areas. [7-15 to 9-15; WESTON]

Removal Action at Umiat Test Well No. 9, Umiat, AK, U.S. Army Corps of Engineers, Umiat, AK, Marsh Creek, LLC., Project Scientist. WESTON was responsible for delineating, surveying, and GIS mapping the extent of PCBs and POL soil contamination at this remote former exploration drill site located in the National Petroleum Reserve-Alaska. Collected 200+ soil samples and assisted soil excavation using on-site laboratory sample analysis for DRO and PCBs. Immediate sample results were used to guide the excavation footprint to remove POL and PCB contaminated soil. Segregated excavated wastes and ensured proper disposal based on RCRA contaminant concentrations. Led team tasked with delineating/GPS surveying/GIS mapping the extent of PCBs and POL soil contamination. [3-13 to 4-14; WESTON]

VC Sellers Reserve - Environmental Liability and Compliance Soil and Groundwater Investigations, Anchorage/Deadhorse/Fairbanks/ Kenai, Alaska, Primary Field Manager. Project included remediation of petroleum impacted contaminated sites as part of purchase agreement for sale of industrial properties. Acted as a primary field manager for on-site remediation, and sampling activities. Coordinated with subcontractor and utilities to excavate, sample, and backfill ~ 34,000 cubic yards of contaminated soil from 9 remote Alaska contaminated areas spanning 2 lease pads. Over 400 soil samples were collected/analyzed for DRO, GRO, RRO, VOCs, SVOCs, and PAHs. Supervised monitoring well decommissioning activities, data analyses, and final reporting support. As a result, the client was able to cleanup the soil at the site to meet ADEC regulations and applicable cleanup standards. [12-08 to 12-10; RSE]

PFAS/PFOA Site Characterization, Gustavus, AK, Primary Field Lead and Author. Conducted site characterization activities at a private residence where Aqueous Film Forming Foam was applied to extinguish a small brush fire. Responsibilities included field management, installation and development of at 18 monitoring wells and collection of 30 surface soil samples to delineate the extent of groundwater and soil contamination. Also responsible for data processing, and final report writing. [7-19 to Present; WESTON]

Pipe & Supply Yard Remediation, Swanson River Field, Sterling, AK, Project Scientist. Provided multiyear project sampling for xylene contamination in soil. WESTON was responsible for the data collection and management in order to satisfy the Alaska's water discharge regulations and the BLM requirements. Responsibilities included confirmation soil sampling of landspread areas and groundwater sampling. [3-12 to 3-13; WESTON]

Reserve Pit Corrective Action Project, Beluga, AK, Field Scientist. WESTON was responsible for the remediation and disposal of drilling waste from a reserve pit located on the west side of Cook Inlet near Ivan River. Performed paint filter tests to ensure super sacked drilling waste adhered to waste landfill disposal regulations, provided an unique super sack identification number for each super sack for tracking purposes, and performed various administrative tasks on-site. [6-12 to 8-12; WESTON]

Spill Response Assessment and Site Remediation, Anchorage, AK, Project Scientist and Primary Field Lead. Conducted initial spill investigation and site remediation associated with a 2,500-gallon release of pipeline corrosion inhibitor at a bulk storage and blending facility. Led field investigation and sampling necessary to delineate and remove contaminated soil, soil data processing, and final report writing for compliance with State regulations. Provided daily reports to the ADEC Contaminated Sites Project Manager. As a result, the client was able to cleanup the soil at the site to meet ADEC regulations and applicable cleanup standards. [11-10 to 10-11; RSE]

Soil and Surface-Water Spill Cleanup and Remediation, King Salmon, AK. Project Manager and Field Lead. Impacted soil and surface water were remediated alongside the Naknek River at the Alaska Department of Fish and Game maintenance facility in King Salmon, AK. Project activities included multiagency coordination, soil and surface-water remediation, confirmation soil sampling, soil landfarming, data analyses, and final reporting. [12-10; RSE]

Soil Remediation and Building Demolition, Anchorage, AK, **Project Field Scientist**. Project included demolition of a large commercial carwash/fuel service facility and removal of three registered USTs. Responsibilities included field management, soil and surface-water remediation, and confirmation soil sampling. Specific site activities also included remediation and segregation of soils by degree of contamination, removal of water and sludge from an oil/water separator, and pumping of liquids from two large wash pits. [12-07; BGES]

Soil Remediation and Stockpiling, Anchorage, AK, Project Field Manager. Project activities included soil boring and monitoring well installation, remediation of over 600 cubic yards of contaminated soil, excavation dewatering, collection of confirmation soil samples (including multi-incremental sampling techniques), extensive interaction with the client, and preparing a final report. [12-07; BGES]

Large Stockpile Characterizations, Kodiak, AK, Alaska Housing Finance Corporation, Project Manager and Field Scientist. Conducted soil sampling of the two large contaminated stockpiles using multi-incremental sampling techniques. Responsible for project management, sample collection, and final report preparation. [12-08; BGES]

Former Gas Station Piping Removal, Glenallen, AK, Project Manager and Field Scientist. Observed and characterized excavation of two former AST locations, and removal of associated fuel piping runs and dispenser foundations. Responsibilities included project management, collection of soil screening and confirmation samples, data analysis, and final reporting. [12-07; BGES]

Phase I and II ESAs, Eagle River, AK, **Project Manager and Field Scientist**. Conducted a Phase I ESA at the Eagle River wastewater treatment facility as part of an end-of-lease agreement with the BLM. A portion of the land to be transferred back to BLM was used for sewage sludge spreading and a subsurface investigation (Phase II ESA) was conducted to determine possible soil impacts associated with land spreading of sewage sludge. Responsibilities included project and field management, soil sampling over a 10-acre area using multi-incremental sampling techniques, data analysis, and final reporting. [12-08; BGES]

Landspread Characterization Using Multi-Incremental Sampling Techniques, Kenai, AK, **Project Manager and Field Scientist**. Characterized a landspread area approximately 5 acres in size for ADEC site closure purposes. Responsibilities included project and field management, soil sampling over a 5-acre area using multi-incremental sampling techniques, data analysis, and final reporting. [12-11; RSE]

Orphan Drum Characterization, Sand Point, AK, Project Manager and Field Scientist. Characterized the contents of 30 55-gallon orphan drums at a former drum storage site in Sand Point, AK. Additional activities included a second mobilization to the site to conduct soil characterization by employing multi-incremental sampling techniques. Project activities included project and field management, mobilization and logistical details, field characterization, drum sampling, handling of potentially hazardous waste, and implementing site health and safety. All of the drums were secured in over-packs awaiting disposal. [12-08; BGES]

Monitoring Well Installation and Soil and Groundwater Sampling, Anchorage, AK, Primary Field Scientist. Responsibilities included soil boring advancement, monitoring well installation, soil and groundwater sampling, surveying monitoring wells for groundwater elevations, and final reporting. Project site was located at the Ted Stevens International Airport, which is being actively monitored as part of ADEC-required documentation of the natural attenuation of the hydrocarbon plume. [12-08; RSE]

Monitoring Well Installation and Soil and Groundwater Sampling, Anchorage, AK, **Project Manager and Primary Field Scientist**. Conducted soil boring advancement, monitoring well installation and groundwater sampling activities, and surveying monitoring wells for groundwater elevations. Project was part of the Tidewater-Gull waterline upgrade at the Port of Anchorage. Project activities were conducted within Alaska Railroad right-of-way and/or in close proximity to several subsurface utilities. Multiagency coordination was required to execute project objectives effectively and efficiently. [12-10; RSE]

Monitoring Well Installation, Groundwater Sampling, and Groundwater Monitoring at Numerous Residential and Commercial Properties, Anchorage, AK, Multiple Clients, Project Manager and Field Scientist. Conducted soil boring advancement, monitoring well installation, and groundwater sampling at short-term and long-term monitoring facilities. Project activities included surveying monitoring wells for groundwater elevations and sampling of monitoring wells and facility water supply well. [12-07 to 12-11; RSE]

Phase I ESA, Large Commercial Facility/Warehouse and Fire Department, Eagle River, Project Manager and Field Investigator. Facility was an ADEC brownfield project. Project activities included research of state and federal databases, conducting an extensive site walk-through, procurement of historical aerial photographs, and final report writing. [12-07 to 12-08; BGES]

Phase I ESAs for Service Stations, Automotive Garages, and Auto-Body Shops, Anchorage, AK, **Multiple Clients, Project Manager and Field Investigator.** Conducted Phase I ESAs for several commercial service stations, automotive garages, and auto-body shops in the Anchorage area. Project activities included research of state and federal databases, conducting a site walk-through, procurement of historical aerial photographs, and final report writing. Some of these Phase I ESAs resulted in additional subsurface investigations. [12-07 to 12-08; BGES]

Phase I ESAs for Several Housing Authorities, Anchorage, AK, Project Manager and Field Investigator. Several housing authorities in the Anchorage area have been buying old properties, demolishing existing structures, and rebuilding low income housing units. As part of these projects a Phase I ESA was conducted prior to the housing authorities' acquisition of the property. Project activities included research of state and federal databases, conducting a site walk-through, procurement of historical aerial photographs, and final report writing. [12-07 to 12-08; BGES]

Hazardous Building Material (HBM) Inventories, Anchorage, AK, Field Investigator and Scientist. Assisted in and conducted more than five Phase I ESAs and HBM inventories in the Mountain View area of Anchorage for Cook Inlet Housing Authority. Project activities included completion of Phase I ESAs and assisting a certified lead and asbestos inspector in HBMs (including asbestos and lead sampling) at single and multi-family residences throughout the Mountain View area of Anchorage. [12-07 to 12-08; BGES]

Construction General Permit (CPG) SWPPP, Anchorage, AK, **Project Manager and Field Investigator**. Project included the rehabilitation of a series of sewer manholes along the Turnagain Arm in Anchorage, AK. Responsibilities included site investigation (SI), agency coordination, obtaining excavation dewatering permit, site map development, and final permit writing. [12-10; RSE]

CGP SWPPP, Mountain Village, AK, Project Manager and Field Investigator. A CGP SWPPP was required for this construction project, which consisted of construction of a new tank farm in Mountain Village, AK. Project included demolition of existing tank farm and construction of a new tank farm in an adjacent location. Responsibilities included SI, agency coordination, site map development, and final permit writing. [12-10 to 12-11; RSE]

Multi-Sector General Permit (MSGP) SWPPP, Anchorage, AK, **Project Manager and Field Investigator**. Developed an MSGP SWPPP for a shipping facility in the Ted Stevens International Airport in Anchorage, AK. Responsibilities included specific sector requirements investigation, site and facility investigation, agency coordination, site map development, and final permit writing. [12-09; RSE]

Zack Kirk
Title: Senior Environmental Scientist / Project Manager

Education

B.S. Environmental Science, University of Michigan, Ann Arbor, Michigan — December 2002

Training / Certifications

Corps of Engineers – Construction Quality Management for Contractors	December 2009
OSHA 40-Hour Hazardous Waste Operations and Emergency Response Training	October 2006
OSHA 8-Hour HAZWOPER Supervisor Training	Annual
Confined Space Procedure Training	February 2010
DOT / IATA Hazmat Shipping (8 hour)	November 2010
CPR and First Aid Training	Annual
Bloodborne Pathogens Training	Annual

Employment History

Rescon Alaska, LLC
Senior Environmental Scientist / Project Manager — 2013-Present

Geosyntec Consultants, Inc.
Environmental Scientist / Project Manager — 2011-2013

OASIS Environmental, LLC
Associate Scientist / Junior Project Manager — 2006-2011

United States Navy
Lieutenant / Ship's Navigator / Department Head — 2002-2006

Field of Competence

Mr. Kirk has over thirteen years of experience in environmental investigation and remediation in Alaska and the Western United States. Mr. Kirk has managed or served as project technical lead for CERCLA-compliant site investigations as well as numerous State regulated cleanup projects for agency and private industry clients. Mr. Kirk has over 10 years of project management experience in varying locales ranging from high density urban areas in the Pacific Northwest and California to remote sites throughout Alaska. His diversified experience includes due diligence Environmental Site Assessments (ESAs), water quality characterizations, soil and sediment investigations, regulatory compliance, HTRW removal actions, disaster response actions, contaminated site remediation, risk assessments, data validation, vapor intrusion mitigation, storm and wastewater discharge permitting and monitoring wastewater treatment programs. Mr. Kirk has performed remedial environmental actions at sites with various contaminants including; chlorinated solvents, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, petroleum hydrocarbons, metals, herbicides, pesticides, and dioxins/furans.

Mr. Kirk provides technical guidance and support to junior associates through mentoring on the correct performance of field data collection of various media including; soil, soil vapor, indoor and outdoor air, sediment, surface water, and/or groundwater data in order to accurately quantify an environmental condition. Mr. Kirk also manages the company reporting schedule and provides senior level review and guidance on the development of planning and reporting documents.

Additional Expertise

- Evaluation and implementation of environmental safety measures
- Marine oil spill response
- Monitoring of vessel waste and wastewater treatment and handling operations
- Remote and arctic site remediation
- Wildfire environmental impact response
- Soil vapor extraction and/or mitigation system installation
- In-situ soil and groundwater remediation
- Heavy equipment operation (front end loader, skid steer, roller compactor)
- Baseline fishery population studies

Key Project Experience:

Project Manager, Release Investigation and Closure of Tank 300-1 (ADEC Tank #8), Remedial Action-Construction Activities, King Salmon Airport, AFCEC, 2018.
Mr. Kirk managed the over $150K project to successfully close in place an existing UST, and characterize and define the extent of impacted POL soil from a nearby subgrade sump at the site at the King Salmon Airport in the summer of 2018. The project consisted of the use of ground penetrating radar to identify the extents of the UST and the locations of the associated piping runs for the placement of investigative borings. The project team advanced 11 soil borings around the UST and the sump and installed 3 monitoring wells to quantify the impacts to the groundwater quality in the area. Mr. Kirk worked closely with the ADEC regulator and the AFCEC client to ensure the closure activity met the requirements for an ADEC closure determination. Mr. Kirk completed the project on time and under budget while also meeting the project objectives of a successful closure of the UST and full characterization and delineation of the extent of petroleum impact at the site.

Project Manager, Notices of Environmental Contamination (Multiple USAF Installations), Restoration Advisory Board Meetings, Updating the Clear Air Force Base LUCMP and Cold Bay LRRS LTM Event, USAF, 2019-Ongoing.
Mr. Kirk is the project manager for this $200K multi-faceted project for the USAF. The project includes the development of Notices of Environmental Contamination for over 75 contaminated USAF sites throughout Alaska, the management and recording of Restoration Advisory Board Meetings for the Point Lay and Point Barrow LRRS installations, updating the LUCMP including development of field guides, site figures and installation posters for Clear Air Force Base and the performance of a LTM sampling event and LUC inspections at three sites at the Cold Bay LRRS. All project activities have been completed ahead of schedule and under budget and are currently awaiting final ADEC and USAF approval for project completion.

Project Manager, Drum Removal and Remote Soil Remediation, Pfaff Mine, National Parks Service, Katmai, Alaska, 2008-2010.
Mr. Kirk managed successive annual drum removal actions and onsite contaminated soil remediation efforts at the former Pfaff Mine site in Katmai Alaska. Field activities included locating and air lifting over twenty 55-gallon fuel drums scattered throughout the mine claim area. Mr. Kirk performed the soil investigation and sampling in areas of observed environmental contamination at multiple drum locations.

He also performed excavations of two areas of petroleum-contaminated soil for onsite remediation in treatment cells through application and mixing of an oxidizing agent. Duties included planning, remote site field logistics, soil sampling, excavation and treatment and reporting.

Project Manager, Big Mountain Long Radio Relay Station, Long Term Environmental Monitoring, Debris Inventory and Removal, AFCEC/USACE, Big Mountain, Alaska 2013 – Ongoing.

Mr. Kirk has managed the Long Term Environmental Monitoring program at the Big Mountain Long Radio Relay Station near Lake Illiamna in western Alaska since May 2014. He oversees the annual performance of groundwater, surface water and sediment sampling and the assessment of established land use controls at several sites within the former installation. He has performed evaluations on concentrations of natural attenuation parameters in groundwater samples to provide the USAF with an understanding of the natural attenuation potential of residual contaminants. In 2017, he oversaw a debris inventory effort to locate, quantify and assess the environmental impact of over 50 remnant debris sites at the former installation. Through the development of a robust debris site database with the incorporation of geolocation and analytical data he was able to provide the Air Force with a comprehensive quantification of the costs and logistics necessary to coordinate the subsequent removal effort in the summer 2019 field season. Duties include drafting project plans and reporting, client correspondence and monthly status reporting and validating and uploading the analytical data into the USAF ERPIMS data management program.

Project Manager, Development of Notices of Contamination, U.S. Air Force Civil Engineer Center, Over 50 Installation Sites, Alaska, 2017-2018

Mr. Kirk managed the development of Notice of Contamination reports for over 50 Air Force Installation sites throughout Alaska for recording with the Alaska Department of Natural Resources. Through incorporation of all available resources, including agency regulatory records, site decision documents and remedial contractor reports, Mr. Kirk accurately and succinctly reported the current environmental condition of each installation site along with the requisite ongoing monitoring and management requirements to ensure continued regulatory compliance. The reports were completed with well-defined site maps and recorded with the Alaska DNR in formats that were clear and understandable to facilitate awareness to the public.

Project Manager, Phase I and II Environmental Site Assessment / Surface Water Impact Assessment, North Slope Borough Former Water and Wastewater Treatment Plant, Deadhorse, Alaska, 2016-2018

Mr. Kirk managed the performance of a Phase I and subsequent Phase II Environmental Site Assessment (ESA) at the North Slope Borough's former Water and Wastewater Treatment Plant (WWTP) in Deadhorse, Alaska. Utilizing the findings from historic site reports and agency records, Mr. Kirk identified several recognized environmental conditions at the site in the Phase I ESA report. Mr. Kirk, subsequently led a Phase II ESA effort and a surface water quality assessment in 2017 to quantify and define the extent of impacted soil at the site and on the nearby new WWTP property adjacent to the south. The results of the investigation provided the North Slope Borough with a thorough understanding of the extent of contaminant impact and the remedial costs needed for planning and development of an upcoming corrective action.

"I want to recognize your team, led by Zack, as the most prepared, safe and professional contract group that we've have encountered. Zack led the kickoff safety meeting and covered all aspects of the project and

> *associated risks, leaving very little for us to add. In addition, each one of the crew was engaged in the safety process as well as their individual job duties. They made our jobs easy and we wanted to say thanks."*
>
> Rich Helinski
> Project Manager, ICE Services, Inc.

Project Manager, In-situ Injection of Oxidizing Agent and Groundwater Monitoring and Statistical Analysis, Copper Valley Electric Association, Glennallen, Alaska, 2008-2011.
Project manager for the implementation of multiple in-situ injections of an oxidizing agent to enhance attenuation of petroleum contaminated soil and groundwater. By augmenting the design of the delivery screen and the injection methods, he significantly improved the flow and dispersion of the agent into the dense silty substrate. Using statistical analysis of the groundwater monitoring data, Mr. Kirk was able to prove that the contaminant plume was stable and declining, and was no longer a risk for offsite migration. Duties included work plan preparation, design and implementation of the oxidizing agent injection and injection methods, groundwater monitoring, HSE management, performing the statistical analysis on the analytical results and project reporting.

Project Manager, Site Characterization ADOT&PF Snow Removal Equipment Building, ADEC, Unalakleet, Alaska, May 2009.
Project manager for a site characterization of an abandoned fuel pipeline and the associated petroleum release at the Unalakleet airport in northwest Alaska. He led the field team in defining the extent of the impacted area and the installation of the monitoring wells to quantify and track the down-gradient contaminant migration. During the investigation, he was able to locate, restore and redevelop two former monitoring wells in the area, providing the ADEC with a more robust characterization of the subsurface conditions at the site. Duties included work plan development, HSE management, design of the geophysical survey grid to identify an abandoned fuel line, field sampling and logging of soil cores, installation of monitoring wells, surveying monitoring wells and project reporting.

Project Manager, Monitored Natural Attenuation and Bioventing System Monitoring, Horizon Lines, LLC, Anchorage, Alaska, 2009-2010.
Project manager for the execution of a long term monitoring program to quantify the enhanced attenuation progress. In analyzing the monitored attenuation parameter results of the background (or baseline) well, initially installed in an uncontaminated location, Mr. Kirk discovered that the groundwater quality parameters in vicinity of the well were inconsistent with levels expected in an un-impacted area. Due to a previously unidentified up-gradient contaminant source, the background well could no longer be used as a comparison for evaluating natural attenuation progress at the site. As a result, Mr. Kirk developed a plan for investigation and installation of new background well in order to sufficiently monitor the natural attenuation and improve quantification of the effect of the passive bioventing system at the site. Duties included field logistics, work plan preparation, HSE management, groundwater monitoring and analysis of the attenuation parameters, monitoring of the site bioventing system, and project reporting.

Lead Field Scientist, Soil and Groundwater Investigation, Sweetwater Marsh, San Diego Bay National Wildlife Refuge, Chula Vista, California, 2011 - 2012.
Performed a Preliminary Assessment / Site Investigation of the Sweetwater Marsh area in the San Diego Bay National Wildlife Refuge. Collected soil and groundwater samples to investigate the impact to the marsh soils from historic dumping of burn ash by nearby landfills. Advanced soil borings at several locations of known and suspected impact at the 80 acre site to analyze for the presence of petroleum,

metals, PCBs, dioxins and PAHs contaminants. Duties included development of the project Health and Safety Plan, field sampling, and reporting. The characterization enabled identification of the impacted areas within the marsh area for subsequent delineation and removal efforts.

Field Lead, 2011 East Canal Site Investigation and Remediation, NAVFAC Northwest, Adak, Alaska May – July 2011.
Mr. Kirk supervised the investigation of petroleum contaminated soil adjacent to the Adak municipal airstrip, which was impacting the surface water in nearby drainage canals. He guided environmental drilling subcontractor in the advancement soil borings and UVOST exploratory drilling to define the extent of diesel impacted soil. He oversaw the excavation of over 35,000 cubic yards of soil from a 7,500 square foot area that was impacting an adjacent airstrip canal. Duties included drafting the Waste Management Plan, logging and sampling soil cores, supervision of delineation efforts using UVOST investigation technology, soil characterization, design and implementation of canal dewatering, oversight of excavation, oxidizing agent application and backfill efforts in accordance with plan specifications, supervision of well installation. The remedial effort was successful in removing over 800 cubic yards of contaminated soil and eliminating several petroleum seeps to the adjacent canal that had been impacting the water body since their discovery in 2002.

Management and maintenance of the oil spill at sea response equipment for petroleum exploration and production industries, Alyeska Pipeline Company and Shell Oil, Alaska, 2008-2011.
Mr. Kirk supervised the maintenance and training of the oil spill at sea response fluorometer equipment for major petroleum exploration and production companies. He participated in multi-platform training scenarios utilizing the fluorometer equipment to evaluate the efficacy of dispersant deployments in marine environments off the coast of Alaska. He was instrumental in coordinating the upgrade of the fluorometer equipment to comply with Special Monitoring of Applied Response Technologies standards.

Field Scientist, Impaired Water Body Characterization, Alaska Department of Environmental Conservation, Dutch Harbor, Illiuliuk Bay, Illiuliuk Harbor, Alaska, 2008.
Field scientist for the marine water quality and sediment assessment in Dutch and Illiuliuk Harbors in support of an evaluation of the impaired water bodies under the ADEC Term Water Contract. Duties included operation of sampling equipment utilized for discrete sample collection of the sediment and the stratified water column to characterize the extent of contamination and data management and analysis. The characterization effort helped identify the impacted areas of concern for Dutch and Illiuliuk Harbors and confirmed that conditions in Illiuliuk Bay met the ADEC marine water quality standards.

Lead Field Scientist, BP Former Tuboscope Plant Site, BP Alaska, Prudhoe Bay, Alaska, 2008-2010.

Lead field scientist for the investigation of the release of VOC and dioxin contaminants at the former Tuboscope Plant site on the BP lease in Prudhoe Bay, Alaska. He guided the installation and performed the periodic monitoring of several subsurface thermistors placed at the site to identify the time and locations when and where the impacted active-layer water was mobile and migrating into the tundra. His work with the thermistor data supported tracking of freeze and thaw rates on and off the pad and identifying areas where offsite migration of contaminated active-water was the greatest risk. The findings greatly helped guide the investigation on the spread of VOC contaminants into the tundra and to develop and alter controls to mitigate further releases. Duties included HSE management, field logistics, work plan preparation, installation of monitoring wells, groundwater and tundra surface water monitoring, thermistor installation and project reporting. Additional duties included the design and construction of plant transpiration domes placed over various native tundra flora to evaluate and quantify the degree of transpiration occurring from the tundra vegetation.

Project Manager, ERA Helicopter Pad, ERA Aviation, Deadhorse, Alaska, 2008-2010.
Project manager for the annual groundwater monitoring program at the ERA Aviation Helicopter Facility in Deadhorse, Alaska. Utilizing statistical analysis, he was able to confirm that the contaminant plume was stable and no longer a concern for releasing to the adjacent tundra. Duties included HSE management, field logistics, work plan preparation, groundwater and tundra surface water monitoring and project reporting.

Field Technical Lead, Vapor Intrusion Assessment, Denali Parks Building 107, National Parks Service, Denali, Alaska, 2012.
Mr. Kirk conducted a vapor intrusion assessment of office Building 107 in the National Parks Service headquarters. He installed four soil vapor probes around the exterior of the building to assess the concentrations of contaminants in the soil gas following a release from a nearby fuel tank. Duties included the installation and sampling of four permanent vapor probes and the performance of a building survey to assess the potential vapor intrusion exposure to the subject building.

ATTACHMENT 3
SGS NORTH AMERICA – ANCHORAGE
CURRENT ACCREDITATIONS

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THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program
Laboratory Approval Program

555 Cordova Street
Anchorage, Alaska 99501
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cs.lab.cert@alaska.gov

January 13, 2020

Charles Homestead
SGS North America – Anchorage
200 W. Potter Drive
Anchorage, AK 99518

RE: Contaminated Sites Laboratory Approval **17-021**

Dear Mr. Homestead,
Thank you for submitting an application to the Alaska Department of Environmental Conservation's Contaminated Sites Laboratory Approval Program (CS-LAP), on January 9, 2020. Based on your lab's Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP) approval through the American Association for Laboratory Accreditation (A2LA), SGS North America – Anchorage, located at the above address, is granted ***Approved*** status to perform the analyses listed in the attached *Scope of Approval*, for Alaska contaminated sites projects, including underground storage tanks and leaking underground storage tank sites (UST/LUST), under the July 1, 2017 amendments to 18 AAC 78. This approval is effective December 31, 2019, and expires on ***January 31, 2022***.

Be aware that **any** changes in your DoD-ELAP approval status must be reported to the CS program within 3 business days. Failure to do so will result in revocation of **all** CS-LAP approvals for a period of one year. Notification should be in writing sent to cs.lab.cert@alaska.gov. We recommend also contacting the CS-LAP by telephone to verify that the message was received.

Please remember to include the laboratory's ID number, listed above, on all correspondence concerning the laboratory. To apply for renewal of your approval, please complete the application found on the CS-LAP webpage and submit to cs.submittals@alaska.gov. The required documentation must be submitted for renewal no later than 30 days before your date of expiration.

If you have any questions, please contact the CS-LAP at (907) 465-5390, or by email at cs.lab.cert@alaska.gov. Labs are also highly encouraged to join the CS-LAP listserv by going to http://list.state.ak.us/mailman/listinfo/cs.lab.approval.

Respectfully,

Brian Englund

Brian Englund

Attachment: Scope of Approval

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
83-32-9	Soil	Acenaphthene	8270D	A2LA
83-32-9	Water	Acenaphthene	8270D	A2LA
83-32-9	Soil	Acenaphthene	8270D-SIM	A2LA
83-32-9	Water	Acenaphthene	8270D-SIM	A2LA
208-96-8	Soil	Acenaphthylene	8270D	A2LA
208-96-8	Water	Acenaphthylene	8270D	A2LA
208-96-8	Soil	Acenaphthylene	8270D-SIM	A2LA
208-96-8	Water	Acenaphthylene	8270D-SIM	A2LA
67-64-1	Soil	Acetone	8260C	A2LA
67-64-1	Water	Acetone	8260C	A2LA
309-00-2	Soil	Aldrin	8270D-SIM	A2LA
309-00-2	Water	Aldrin	8270D-SIM	A2LA
120-12-7	Soil	Anthracene	8270D	A2LA
120-12-7	Water	Anthracene	8270D	A2LA
120-12-7	Soil	Anthracene	8270D-SIM	A2LA
120-12-7	Water	Anthracene	8270D-SIM	A2LA
7440-36-0	Soil	Antimony (metallic)	6020A	A2LA
7440-36-0	Water	Antimony (metallic)	6020A	A2LA
7440-38-2	Soil	Arsenic, Inorganic	6020A	A2LA
7440-38-2	Water	Arsenic, Inorganic	6020A	A2LA
7440-39-3	Soil	Barium	6020A	A2LA
7440-39-3	Water	Barium	6020A	A2LA
56-55-3	Soil	Benz[a]anthracene	8270D	A2LA
56-55-3	Water	Benz[a]anthracene	8270D	A2LA
56-55-3	Soil	Benz[a]anthracene	8270D-SIM	A2LA
56-55-3	Water	Benz[a]anthracene	8270D-SIM	A2LA
71-43-2	Soil	Benzene	8260C	A2LA
71-43-2	Water	Benzene	8260C	A2LA
50-32-8	Soil	Benzo[a]pyrene	8270D	A2LA
50-32-8	Water	Benzo[a]pyrene	8270D	A2LA
50-32-8	Soil	Benzo[a]pyrene	8270D-SIM	A2LA
50-32-8	Water	Benzo[a]pyrene	8270D-SIM	A2LA
205-99-2	Soil	Benzo[b]fluoranthene	8270D	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
205-99-2	Water	Benzo[b]fluoranthene	8270D	A2LA
205-99-2	Soil	Benzo[b]fluoranthene	8270D-SIM	A2LA
205-99-2	Water	Benzo[b]fluoranthene	8270D-SIM	A2LA
191-24-2	Soil	Benzo[g,h,i]perylene	8270D	A2LA
191-24-2	Water	Benzo[g,h,i]perylene	8270D	A2LA
191-24-2	Soil	Benzo[g,h,i]perylene	8270D-SIM	A2LA
191-24-2	Water	Benzo[g,h,i]perylene	8270D-SIM	A2LA
207-08-9	Soil	Benzo[k]fluoranthene	8270D	A2LA
207-08-9	Water	Benzo[k]fluoranthene	8270D	A2LA
207-08-9	Soil	Benzo[k]fluoranthene	8270D-SIM	A2LA
207-08-9	Water	Benzo[k]fluoranthene	8270D-SIM	A2LA
65-85-0	Soil	Benzoic Acid	8270D	A2LA
65-85-0	Water	Benzoic Acid	8270D	A2LA
100-51-6	Soil	Benzyl Alcohol	8270D	A2LA
100-51-6	Water	Benzyl Alcohol	8270D	A2LA
7440-41-7	Soil	Beryllium and compounds	6020A	A2LA
7440-41-7	Water	Beryllium and compounds	6020A	A2LA
111-44-4	Soil	Bis(2-chloroethyl)ether	8270D	A2LA
111-44-4	Water	Bis(2-chloroethyl)ether	8270D	A2LA
117-81-7	Soil	Bis(2-ethylhexyl)phthalate (DEHP)	8270D	A2LA
117-81-7	Water	Bis(2-ethylhexyl)phthalate (DEHP)	8270D	A2LA
108-86-1	Soil	Bromobenzene	8260C	A2LA
108-86-1	Water	Bromobenzene	8260C	A2LA
75-27-4	Soil	Bromodichloromethane	8260C	A2LA
75-27-4	Water	Bromodichloromethane	8260C	A2LA
75-25-2	Soil	Bromoform	8260C	A2LA
75-25-2	Water	Bromoform	8260C	A2LA
74-83-9	Soil	Bromomethane	8260C	A2LA
74-83-9	Water	Bromomethane	8260C	A2LA
85-68-7	Soil	Butyl Benzyl Phthalate	8270D	A2LA
85-68-7	Water	Butyl Benzyl Phthalate	8270D	A2LA
104-51-8	Soil	Butylbenzene, n-	8260C	A2LA
104-51-8	Water	Butylbenzene, n-	8260C	A2LA

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CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
135-98-8	Soil	Butylbenzene, sec-	8260C	A2LA
135-98-8	Water	Butylbenzene, sec-	8260C	A2LA
98-06-6	Soil	Butylbenzene, tert-	8260C	A2LA
98-06-6	Water	Butylbenzene, tert-	8260C	A2LA
7440-43-9	Soil	Cadmium	6020A	A2LA
7440-43-9	Water	Cadmium	6020A	A2LA
75-15-0	Soil	Carbon Disulfide	8260C	A2LA
75-15-0	Water	Carbon Disulfide	8260C	A2LA
56-23-5	Soil	Carbon Tetrachloride	8260C	A2LA
56-23-5	Water	Carbon Tetrachloride	8260C	A2LA
5103-71-9	Soil	Chlordane, α-	8270D-SIM	A2LA
5103-71-9	Water	Chlordane, α-	8270D-SIM	A2LA
5103-74-2	Soil	Chlordane, γ-	8270D-SIM	A2LA
5103-74-2	Water	Chlordane, γ-	8270D-SIM	A2LA
12789-03-6	Soil	Chlordane, Total	8270D-SIM	A2LA
12789-03-6	Water	Chlordane, Total	8270D-SIM	A2LA
106-47-8	Soil	Chloroaniline, p-	8270D	A2LA
106-47-8	Water	Chloroaniline, p-	8270D	A2LA
108-90-7	Soil	Chlorobenzene	8260C	A2LA
108-90-7	Water	Chlorobenzene	8260C	A2LA
67-66-3	Soil	Chloroform	8260C	A2LA
67-66-3	Water	Chloroform	8260C	A2LA
74-87-3	Soil	Chloromethane	8260C	A2LA
74-87-3	Water	Chloromethane	8260C	A2LA
91-58-7	Soil	Chloronaphthalene, Beta-	8270D	A2LA
91-58-7	Water	Chloronaphthalene, Beta-	8270D	A2LA
95-57-8	Soil	Chlorophenol, 2-	8270D	A2LA
95-57-8	Water	Chlorophenol, 2-	8270D	A2LA
7440-47-3	Soil	Chromium (Total)	6020A	A2LA
7440-47-3	Water	Chromium (Total)	6020A	A2LA
218-01-9	Soil	Chrysene	8270D	A2LA
218-01-9	Water	Chrysene	8270D	A2LA
218-01-9	Soil	Chrysene	8270D-SIM	A2LA

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CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
218-01-9	Water	Chrysene	8270D-SIM	A2LA
7440-50-8	Soil	Copper	6020A	A2LA
7440-50-8	Water	Copper	6020A	A2LA
N/A	Soil	Cresol, m- (3-Methylphenol) + Cresol, p- (4-Methylphenol)	8270D	A2LA
N/A	Water	Cresol, m- (3-Methylphenol) + Cresol, p- (4-Methylphenol)	8270D	A2LA
95-48-7	Soil	Cresol, o- (2-Methylphenol)	8270D	A2LA
95-48-7	Water	Cresol, o- (2-Methylphenol)	8270D	A2LA
-	Soil	Cresols, Total	8270D	A2LA
-	Water	Cresols, Total	8270D	A2LA
98-82-8	Soil	Cumene (Isopropylbenzene)	8260C	A2LA
98-82-8	Water	Cumene (Isopropylbenzene)	8260C	A2LA
72-54-8	Soil	DDD, 4,4'-	8270D-SIM	A2LA
72-54-8	Water	DDD, 4,4'-	8270D-SIM	A2LA
72-55-9	Soil	DDE, 4,4'-	8270D-SIM	A2LA
72-55-9	Water	DDE, 4,4'-	8270D-SIM	A2LA
50-29-3	Soil	DDT, 4,4'-	8270D-SIM	A2LA
50-29-3	Water	DDT, 4,4'-	8270D-SIM	A2LA
53-70-3	Soil	Dibenz[a,h]anthracene	8270D	A2LA
53-70-3	Water	Dibenz[a,h]anthracene	8270D	A2LA
53-70-3	Soil	Dibenz[a,h]anthracene	8270D-SIM	A2LA
53-70-3	Water	Dibenz[a,h]anthracene	8270D-SIM	A2LA
132-64-9	Soil	Dibenzofuran	8270D	A2LA
132-64-9	Water	Dibenzofuran	8270D	A2LA
124-48-1	Soil	Dibromochloromethane	8260C	A2LA
124-48-1	Water	Dibromochloromethane	8260C	A2LA
106-93-4	Soil	Dibromoethane, 1,2- (Ethylene Dibromide)	8260B-SIM	A2LA
106-93-4	Soil	Dibromoethane, 1,2- (Ethylene Dibromide)	8260C	A2LA
106-93-4	Water	Dibromoethane, 1,2- (Ethylene Dibromide)	8260C	A2LA
106-93-4	Water	Dibromoethane, 1,2- (Ethylene Dibromide)	8260C-SIM	A2LA
74-95-3	Soil	Dibromomethane (Methylene Bromide)	8260C	A2LA
74-95-3	Water	Dibromomethane (Methylene Bromide)	8260C	A2LA
84-74-2	Soil	Dibutyl Phthalate	8270D	A2LA
84-74-2	Water	Dibutyl Phthalate	8270D	A2LA

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CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
95-50-1	Soil	Dichlorobenzene, 1,2-	8260C	A2LA
95-50-1	Water	Dichlorobenzene, 1,2-	8260C	A2LA
95-50-1	Soil	Dichlorobenzene, 1,2-	8270D	A2LA
95-50-1	Water	Dichlorobenzene, 1,2-	8270D	A2LA
541-73-1	Soil	Dichlorobenzene, 1,3-	8260C	A2LA
541-73-1	Water	Dichlorobenzene, 1,3-	8260C	A2LA
541-73-1	Soil	Dichlorobenzene, 1,3-	8270D	A2LA
541-73-1	Water	Dichlorobenzene, 1,3-	8270D	A2LA
106-46-7	Soil	Dichlorobenzene, 1,4-	8260C	A2LA
106-46-7	Water	Dichlorobenzene, 1,4-	8260C	A2LA
106-46-7	Soil	Dichlorobenzene, 1,4-	8270D	A2LA
106-46-7	Water	Dichlorobenzene, 1,4-	8270D	A2LA
91-94-1	Soil	Dichlorobenzidine, 3,3'-	8270D	A2LA
91-94-1	Water	Dichlorobenzidine, 3,3'-	8270D	A2LA
75-71-8	Soil	Dichlorodifluoromethane (Freon-12)	8260C	A2LA
75-71-8	Water	Dichlorodifluoromethane (Freon-12)	8260C	A2LA
75-34-3	Soil	Dichloroethane, 1,1-	8260C	A2LA
75-34-3	Water	Dichloroethane, 1,1-	8260C	A2LA
107-06-2	Soil	Dichloroethane, 1,2-	8260C	A2LA
107-06-2	Water	Dichloroethane, 1,2-	8260C	A2LA
75-35-4	Soil	Dichloroethylene, 1,1-	8260C	A2LA
75-35-4	Water	Dichloroethylene, 1,1-	8260C	A2LA
156-59-2	Soil	Dichloroethylene, 1,2-cis-	8260C	A2LA
156-59-2	Water	Dichloroethylene, 1,2-cis-	8260C	A2LA
156-60-5	Soil	Dichloroethylene, 1,2-trans-	8260C	A2LA
156-60-5	Water	Dichloroethylene, 1,2-trans-	8260C	A2LA
120-83-2	Soil	Dichlorophenol, 2,4-	8270D	A2LA
120-83-2	Water	Dichlorophenol, 2,4-	8270D	A2LA
78-87-5	Soil	Dichloropropane, 1,2-	8260C	A2LA
78-87-5	Water	Dichloropropane, 1,2-	8260C	A2LA
542-75-6	Soil	Dichloropropene, 1,3- (cis + trans)	8260C	A2LA
542-75-6	Water	Dichloropropene, 1,3- (cis + trans)	8260C	A2LA
60-57-1	Soil	Dieldrin	8270D-SIM	A2LA

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CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
60-57-1	Water	Dieldrin	8270D-SIM	A2LA
N/A	Soil	Diesel Range Organics (C10 – C25)	AK 102	A2LA
N/A	Water	Diesel Range Organics (C10 – C25)	AK 102	A2LA
84-66-2	Soil	Diethyl Phthalate	8270D	A2LA
84-66-2	Water	Diethyl Phthalate	8270D	A2LA
105-67-9	Soil	Dimethylphenol, 2,4-	8270D	A2LA
105-67-9	Water	Dimethylphenol, 2,4-	8270D	A2LA
131-11-3	Soil	Dimethylphthalate	8270D	A2LA
131-11-3	Water	Dimethylphthalate	8270D	A2LA
51-28-5	Soil	Dinitrophenol, 2,4-	8270D	A2LA
51-28-5	Water	Dinitrophenol, 2,4-	8270D	A2LA
121-14-2	Soil	Dinitrotoluene, 2,4- (2,4-DNT)	8270D	A2LA
121-14-2	Water	Dinitrotoluene, 2,4- (2,4-DNT)	8270D	A2LA
606-20-2	Soil	Dinitrotoluene, 2,6- (2,6-DNT)	8270D	A2LA
606-20-2	Water	Dinitrotoluene, 2,6- (2,6-DNT)	8270D	A2LA
123-91-1	Soil	Dioxane, 1,4-	8260C	A2LA
123-91-1	Water	Dioxane, 1,4-	8260C	A2LA
123-91-1	Soil	Dioxane, 1,4-	8260C-SIM	A2LA
123-91-1	Water	Dioxane, 1,4-	8260C-SIM	A2LA
115-29-7	Soil	Endosulfan (Endosulfan I + Endosulfan II)	8270D-SIM	A2LA
115-29-7	Water	Endosulfan (Endosulfan I + Endosulfan II)	8270D-SIM	A2LA
959-98-8	Soil	Endosulfan I	8270D-SIM	A2LA
959-98-8	Water	Endosulfan I	8270D-SIM	A2LA
33213-65-9	Soil	Endosulfan II	8270D-SIM	A2LA
33213-65-9	Water	Endosulfan II	8270D-SIM	A2LA
1031-07-8	Soil	Endosulfan sulfate	8270D-SIM	A2LA
1031-07-8	Water	Endosulfan sulfate	8270D-SIM	A2LA
72-20-8	Soil	Endrin	8270D-SIM	A2LA
72-20-8	Water	Endrin	8270D-SIM	A2LA
75-00-3	Soil	Ethyl Chloride	8260C	A2LA
75-00-3	Water	Ethyl Chloride	8260C	A2LA
100-41-4	Soil	Ethylbenzene	8260C	A2LA
100-41-4	Water	Ethylbenzene	8260C	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
206-44-0	Soil	Fluoranthene	8270D	A2LA
206-44-0	Water	Fluoranthene	8270D	A2LA
206-44-0	Soil	Fluoranthene	8270D-SIM	A2LA
206-44-0	Water	Fluoranthene	8270D-SIM	A2LA
86-73-7	Soil	Fluorene	8270D	A2LA
86-73-7	Water	Fluorene	8270D	A2LA
86-73-7	Soil	Fluorene	8270D-SIM	A2LA
86-73-7	Water	Fluorene	8270D-SIM	A2LA
N/A	Soil	Gasoline Range Organics (C6 – C10)	AK 101	A2LA
N/A	Water	Gasoline Range Organics (C6 – C10)	AK 101	A2LA
76-44-8	Soil	Heptachlor	8270D-SIM	A2LA
76-44-8	Water	Heptachlor	8270D-SIM	A2LA
1024-57-3	Soil	Heptachlor Epoxide	8270D-SIM	A2LA
1024-57-3	Water	Heptachlor Epoxide	8270D-SIM	A2LA
118-74-1	Soil	Hexachlorobenzene	8270D	A2LA
118-74-1	Water	Hexachlorobenzene	8270D	A2LA
87-68-3	Soil	Hexachlorobutadiene	8260C	A2LA
87-68-3	Water	Hexachlorobutadiene	8260C	A2LA
87-68-3	Soil	Hexachlorobutadiene	8270D	A2LA
87-68-3	Water	Hexachlorobutadiene	8270D	A2LA
319-84-6	Soil	Hexachlorocyclohexane, Alpha- (α-BHC)	8270D-SIM	A2LA
319-84-6	Water	Hexachlorocyclohexane, Alpha- (α-BHC)	8270D-SIM	A2LA
319-85-7	Soil	Hexachlorocyclohexane, Beta- (β-BHC)	8270D-SIM	A2LA
319-85-7	Water	Hexachlorocyclohexane, Beta- (β-BHC)	8270D-SIM	A2LA
319-86-8	Soil	Hexachlorocyclohexane, Delta- (δ-BHC)	8270D-SIM	A2LA
319-86-8	Water	Hexachlorocyclohexane, Delta- (δ-BHC)	8270D-SIM	A2LA
58-89-9	Soil	Hexachlorocyclohexane, Gamma- (Lindane)	8270D-SIM	A2LA
58-89-9	Water	Hexachlorocyclohexane, Gamma- (Lindane)	8270D-SIM	A2LA
77-47-4	Soil	Hexachlorocyclopentadiene	8270D	A2LA
77-47-4	Water	Hexachlorocyclopentadiene	8270D	A2LA
67-72-1	Soil	Hexachloroethane	8270D	A2LA
67-72-1	Water	Hexachloroethane	8270D	A2LA
591-78-6	Soil	Hexanone, 2-	8260C	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
591-78-6	Water	Hexanone, 2-	8260C	A2LA
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270D	A2LA
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270D	A2LA
193-39-5	Soil	Indeno[1,2,3-cd]pyrene	8270D-SIM	A2LA
193-39-5	Water	Indeno[1,2,3-cd]pyrene	8270D-SIM	A2LA
78-59-1	Soil	Isophorone	8270D	A2LA
78-59-1	Water	Isophorone	8270D	A2LA
7439-92-1	Soil	Lead, Total	6020A	A2LA
7439-92-1	Water	Lead, Total	6020A	A2LA
72-43-5	Soil	Methoxychlor	8270D-SIM	A2LA
72-43-5	Water	Methoxychlor	8270D-SIM	A2LA
78-93-3	Soil	Methyl Ethyl Ketone (2-Butanone)	8260C	A2LA
78-93-3	Water	Methyl Ethyl Ketone (2-Butanone)	8260C	A2LA
108-10-1	Soil	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260C	A2LA
108-10-1	Water	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	8260C	A2LA
1634-04-4	Soil	Methyl tert-Butyl Ether (MTBE)	8260C	A2LA
1634-04-4	Water	Methyl tert-Butyl Ether (MTBE)	8260C	A2LA
75-09-2	Soil	Methylene Chloride	8260C	A2LA
75-09-2	Water	Methylene Chloride	8260C	A2LA
90-12-0	Soil	Methylnaphthalene, 1-	8270D	A2LA
90-12-0	Water	Methylnaphthalene, 1-	8270D	A2LA
90-12-0	Soil	Methylnaphthalene, 1-	8270D-SIM	A2LA
90-12-0	Water	Methylnaphthalene, 1-	8270D-SIM	A2LA
91-57-6	Soil	Methylnaphthalene, 2-	8270D	A2LA
91-57-6	Water	Methylnaphthalene, 2-	8270D	A2LA
91-57-6	Soil	Methylnaphthalene, 2-	8270D-SIM	A2LA
91-57-6	Water	Methylnaphthalene, 2-	8270D-SIM	A2LA
91-20-3	Soil	Naphthalene	8260C	A2LA
91-20-3	Water	Naphthalene	8260C	A2LA
91-20-3	Soil	Naphthalene	8270D	A2LA
91-20-3	Water	Naphthalene	8270D	A2LA
91-20-3	Soil	Naphthalene	8270D-SIM	A2LA
91-20-3	Water	Naphthalene	8270D-SIM	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
7440-02-0	Soil	Nickel, Total	6020A	A2LA
7440-02-0	Water	Nickel, Total	6020A	A2LA
98-95-3	Soil	Nitrobenzene	8270D	A2LA
98-95-3	Water	Nitrobenzene	8270D	A2LA
62-75-9	Soil	Nitrosodimethylamine, N-	8270D	A2LA
62-75-9	Water	Nitrosodimethylamine, N-	8270D	A2LA
621-64-7	Soil	Nitroso-di-N-propylamine, N-	8270D	A2LA
621-64-7	Water	Nitroso-di-N-propylamine, N-	8270D	A2LA
86-30-6	Soil	Nitrosodiphenylamine, N-	8270D	A2LA
86-30-6	Water	Nitrosodiphenylamine, N-	8270D	A2LA
117-84-0	Soil	Octyl Phthalate, di-N-	8270D	A2LA
12674-11-2	Soil	PCB - Aroclor-1016	8082A	A2LA
12674-11-2	Water	PCB - Aroclor-1016	8082A	A2LA
11104-28-2	Soil	PCB - Aroclor-1221	8082A	A2LA
11104-28-2	Water	PCB - Aroclor-1221	8082A	A2LA
11141-16-5	Soil	PCB - Aroclor-1232	8082A	A2LA
11141-16-5	Water	PCB - Aroclor-1232	8082A	A2LA
53469-21-9	Soil	PCB - Aroclor-1242	8082A	A2LA
53469-21-9	Water	PCB - Aroclor-1242	8082A	A2LA
12672-29-6	Soil	PCB - Aroclor-1248	8082A	A2LA
12672-29-6	Water	PCB - Aroclor-1248	8082A	A2LA
11097-69-1	Soil	PCB - Aroclor-1254	8082A	A2LA
11097-69-1	Water	PCB - Aroclor-1254	8082A	A2LA
11096-82-5	Soil	PCB - Aroclor-1260	8082A	A2LA
11096-82-5	Water	PCB - Aroclor-1260	8082A	A2LA
N/A	Soil	PCB – Total	8082A	A2LA
N/A	Water	PCB – Total	8082A	A2LA
87-86-5	Soil	Pentachlorophenol	8270D	A2LA
87-86-5	Water	Pentachlorophenol	8270D	A2LA
85-01-8	Soil	Phenanthrene	8270D	A2LA
85-01-8	Water	Phenanthrene	8270D	A2LA
85-01-8	Soil	Phenanthrene	8270D-SIM	A2LA
85-01-8	Water	Phenanthrene	8270D-SIM	A2LA

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CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
108-95-2	Soil	Phenol	8270D	A2LA
108-95-2	Water	Phenol	8270D	A2LA
103-65-1	Soil	Propyl benzene	8260C	A2LA
103-65-1	Water	Propyl benzene	8260C	A2LA
129-00-0	Soil	Pyrene	8270D	A2LA
129-00-0	Water	Pyrene	8270D	A2LA
129-00-0	Soil	Pyrene	8270D-SIM	A2LA
129-00-0	Water	Pyrene	8270D-SIM	A2LA
N/A	Soil	Residual Range Organics (C25 – C36)	AK 103	A2LA
N/A	Water	Residual Range Organics (C25 – C36)	AK 103	A2LA
7782-49-2	Soil	Selenium	6020A	A2LA
7782-49-2	Water	Selenium	6020A	A2LA
7440-22-4	Soil	Silver	6020A	A2LA
7440-22-4	Water	Silver	6020A	A2LA
100-42-5	Soil	Styrene	8260C	A2LA
100-42-5	Water	Styrene	8260C	A2LA
630-20-6	Soil	Tetrachloroethane, 1,1,1,2-	8260C	A2LA
630-20-6	Water	Tetrachloroethane, 1,1,1,2-	8260C	A2LA
79-34-5	Soil	Tetrachloroethane, 1,1,2,2-	8260C	A2LA
79-34-5	Water	Tetrachloroethane, 1,1,2,2-	8260C	A2LA
127-18-4	Soil	Tetrachloroethylene	8260C	A2LA
127-18-4	Water	Tetrachloroethylene	8260C	A2LA
7440-28-0	Soil	Thallium, Total	6020A	A2LA
7440-28-0	Water	Thallium, Total	6020A	A2LA
108-88-3	Soil	Toluene	8260C	A2LA
108-88-3	Water	Toluene	8260C	A2LA
N/A	Soil	Total Organic Carbon	9060A	A2LA
N/A	Water	Total Organic Carbon	9060A	A2LA
8001-35-2	Soil	Toxaphene	8270D-SIM	A2LA
8001-35-2	Water	Toxaphene	8270D-SIM	A2LA
76-13-1	Soil	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260C	A2LA
76-13-1	Water	Trichloro-1,2,2-trifluoroethane, 1,1,2- (Freon 113)	8260C	A2LA
87-61-6	Soil	Trichlorobenzene, 1,2,3-	8260C	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
87-61-6	Water	Trichlorobenzene, 1,2,3-	8260C	A2LA
120-82-1	Soil	Trichlorobenzene, 1,2,4-	8260C	A2LA
120-82-1	Water	Trichlorobenzene, 1,2,4-	8260C	A2LA
120-82-1	Soil	Trichlorobenzene, 1,2,4-	8270D	A2LA
120-82-1	Water	Trichlorobenzene, 1,2,4-	8270D	A2LA
71-55-6	Soil	Trichloroethane, 1,1,1-	8260C	A2LA
71-55-6	Water	Trichloroethane, 1,1,1-	8260C	A2LA
79-00-5	Soil	Trichloroethane, 1,1,2-	8260C	A2LA
79-00-5	Water	Trichloroethane, 1,1,2-	8260C	A2LA
79-01-6	Soil	Trichloroethylene	8260C	A2LA
79-01-6	Water	Trichloroethylene	8260C	A2LA
75-69-4	Soil	Trichlorofluoromethane	8260C	A2LA
75-69-4	Water	Trichlorofluoromethane	8260C	A2LA
95-95-4	Soil	Trichlorophenol, 2,4,5-	8270D	A2LA
95-95-4	Water	Trichlorophenol, 2,4,5-	8270D	A2LA
88-06-2	Soil	Trichlorophenol, 2,4,6-	8270D	A2LA
88-06-2	Water	Trichlorophenol, 2,4,6-	8270D	A2LA
96-18-4	Soil	Trichloropropane, 1,2,3-	8260C	A2LA
96-18-4	Water	Trichloropropane, 1,2,3-	8260C	A2LA
95-63-6	Soil	Trimethylbenzene, 1,2,4-	8260C	A2LA
95-63-6	Water	Trimethylbenzene, 1,2,4-	8260C	A2LA
108-67-8	Soil	Trimethylbenzene, 1,3,5-	8260C	A2LA
108-67-8	Water	Trimethylbenzene, 1,3,5-	8260C	A2LA
7440-62-2	Soil	Vanadium, Total	6020A	A2LA
7440-62-2	Water	Vanadium, Total	6020A	A2LA
108-05-4	Soil	Vinyl Acetate	8260C	A2LA
108-05-4	Water	Vinyl Acetate	8260C	A2LA
75-01-4	Soil	Vinyl Chloride	8260C	A2LA
75-01-4	Water	Vinyl Chloride	8260C	A2LA
N/A	Soil	Xylene, m+p-	8260C	A2LA
N/A	Water	Xylene, m+p-	8260C	A2LA
95-47-6	Soil	Xylene, o-	8260C	A2LA
95-47-6	Water	Xylene, o-	8260C	A2LA

Scope of Approval

CAS Number	Matrix	Hazardous Substance	Method	Accreditation Body
1330-20-7	Soil	Xylene, Total	8260C	A2LA
1330-20-7	Water	Xylene, Total	8260C	A2LA
7440-66-6	Soil	Zinc, Total	6020A	A2LA
7440-66-6	Water	Zinc, Total	6020A	A2LA

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program
Laboratory Approval Program

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cs.lab.cert@alaska.gov

February 20, 2020

Charles Homestead
SGS North America – Anchorage
200 W. Potter Drive
Anchorage, AK 99518

RE: Amendment 1 to Contaminated Sites Laboratory Approval **17-021**

Dear Mr. Homestead,
On January 13, 2020, SGS North America – Anchorage received an approval letter from the Alaska Department of Environmental Conservation's Contaminated Sites Laboratory Approval Program (CS-LAP). That approval inadvertently omitted the following compounds:

- Mercury (elemental) by method 6020A in soil and water
- Mercury (elemental) by method 7470A in water
- Mercury (elemental) by method 7471A in soil

This letter adds those compounds to your existing approval. Please note that for the compounds added to your approval, the effective date is January 13, 2020. These compounds are retroactively added to cover the period between December 30, 2019, and February 20, 2020.

Please attach this letter to your original approval letter and Scope of Approval issued January 13, 2020. The two combined letters and the Scope of Approval are the documentation of your approval through the CS-LAP.

If you have any questions, please contact me at (907) 269-7526, or by email at brian.englund@alaska.gov.

Respectfully,

Brian Englund

Brian Englund
Alaska CS Lab Approval Officer

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

SGS NORTH AMERICA INC. – ALASKA DIVISION
200 W Potter Dr.
Anchorage, AK 99518
Mary McDonald Phone: (907)-550-3203
mary.mcdonald@sgs.com

ENVIRONMENTAL

Valid To: December 31, 2021 Certificate Number: 2944.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.3 of the DoD Quality Systems Manual for Environmental Laboratories) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Inductively Coupled Plasma Mass Spectroscopy, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Ion Chromatography, Hazardous Waste Characteristics Tests, Total Organic Carbon

Parameter/Analyte	**Solid & Chemical Materials**	
	Aqueous	**Solid**
Metals		
Aluminum	EPA 6020B	EPA 6020B
Antimony	EPA 6020B	EPA 6020B
Arsenic	EPA 6020B	EPA 6020B
Barium	EPA 6020B	EPA 6020B
Beryllium	EPA 6020B	EPA 6020B
Boron	EPA 6020B	EPA 6020B
Cadmium	EPA 6020B	EPA 6020B
Calcium	EPA 6020B	EPA 6020B
Chromium	EPA 6020B	EPA 6020B
Cobalt	EPA 6020B	EPA 6020B
Copper	EPA 6020B	EPA 6020B
Iron	EPA 6020B	EPA 6020B
Lead	EPA 6020B	EPA 6020B
Magnesium	EPA 6020B	EPA 6020B
Manganese	EPA 6020B	EPA 6020B
Mercury	EPA 6020B EPA 7470A	EPA 6020B EPA 7471A
Molybdenum	EPA 6020B	EPA 6020B
Nickel	EPA 6020B	EPA 6020B

Parameter/Analyte	**Solid & Chemical Materials**	
	Aqueous	**Solid**
Potassium	EPA 6020B	EPA 6020B
Selenium	EPA 6020B	EPA 6020B
Silver	EPA 6020B	EPA 6020B
Sodium	EPA 6020B	EPA 6020B
Strontium	EPA 6020B	EPA 6020B
Thallium	EPA 6020B	EPA 6020B
Vanadium	EPA 6020B	EPA 6020B
Zinc	EPA 6020B	EPA 6020B
Metals Digestion Methods Toxicity Characteristic Leaching Procedure	EPA 3010A EPA 1311	EPA 3050B EPA 1311
Nutrients		
Nitrate (as N)	EPA 9056A	EPA 9056A
Nitrate + Nitrite (as N)	EPA 9056A	EPA 9056A
Nitrite (as N)	EPA 9056A	EPA 9056A
Demands		
Total Organic Carbon	EPA 9060A	EPA 9060A
Wet Chemistry		
Bromide	EPA 9056A	EPA 9056A
Chloride	EPA 9056A	EPA 9056A
Fluoride	EPA 9056A	EPA 9056A
Sulfate	EPA 9056A	EPA 9056A
Purgeable Organics (volatiles)		
Acetone	EPA 8260D	EPA 8260D
Benzene	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
Bromobenzene	EPA 8260D	EPA 8260D
Bromochloromethane	EPA 8260D	EPA 8260D
Bromodichloromethane	EPA 8260D	EPA 8260D
Bromoform	EPA 8260D	EPA 8260D
Bromomethane	EPA 8260D	EPA 8260D
2-Butanone	EPA 8260D	EPA 8260D
n-Butylbenzene	EPA 8260D	EPA 8260D
sec-Butylbenzene	EPA 8260D	EPA 8260D
tert-Butylbenzene	EPA 8260D	EPA 8260D
Carbon Disulfide	EPA 8260D	EPA 8260D
Carbon Tetrachloride	EPA 8260D	EPA 8260D
Chlorobenzene	EPA 8260D	EPA 8260D
Chloroethane	EPA 8260D	EPA 8260D
Chloroform	EPA 8260D	EPA 8260D
Chloromethane	EPA 8260D	EPA 8260D
2-Chlorotoluene	EPA 8260D	EPA 8260D

Parameter/Analyte	Solid & Chemical Materials	
	Aqueous	Solid
4-Chlorotoluene	EPA 8260D	EPA 8260D
Dibromochloromethane	EPA 8260D	EPA 8260D
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260D EPA 8260D SIM	EPA 8260D EPA 8260D SIM
Dibromomethane	EPA 8260D	EPA 8260D
1,2-Dibromoethane (EDB)	EPA 8260D EPA 8260D SIM	EPA 8260D EPA 8260D SIM
1,2-Dichlorobenzene	EPA 8260D	EPA 8260D
1,3-Dichlorobenzene	EPA 8260D	EPA 8260D
1,4-Dichlorobenzene	EPA 8260D	EPA 8260D
Dichlorodifluoromethane	EPA 8260D	EPA 8260D
1,1-Dichloroethane	EPA 8260D	EPA 8260D
1,2-Dichloroethane	EPA 8260D	EPA 8260D
1,1-Dichloroethene	EPA 8260D	EPA 8260D
cis-1,2-Dichloroethene	EPA 8260D	EPA 8260D
trans-1,2-Dichloroethene	EPA 8260D	EPA 8260D
1,2-Dichloropropane	EPA 8260D	EPA 8260D
1,3-Dichloropropane	EPA 8260D	EPA 8260D
2,2-Dichloropropane	EPA 8260D	EPA 8260D
1,1-Dichloropropene	EPA 8260D	EPA 8260D
cis-1,3-Dichloropropene	EPA 8260D	EPA 8260D
trans-1,3-Dichloropropene	EPA 8260D	EPA 8260D
1,4-Dioxane	EPA 8260D SIM	EPA 8260D SIM
Ethyl Benzene	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
Freon 113	EPA 8260D	EPA 8260D
2-Hexanone	EPA 8260D	EPA 8260D
Hexachlorobutadiene	EPA 8260D	EPA 8260D
Isopropylbenzene	EPA 8260D	EPA 8260D
4-Isopropyltoluene	EPA 8260D	EPA 8260D
Methylene chloride	EPA 8260D	EPA 8260D
4-Methyl-2-pentanone	EPA 8260D	EPA 8260D
Methyl tert-butyl ether	EPA 8260D	EPA 8260D
Naphthalene	EPA 8260D	EPA 8260D
n-Propylbenzene	EPA 8260D	EPA 8260D
Styrene	EPA 8260D	EPA 8260D
1,1,1,2-Tetrachloroethane	EPA 8260D	EPA 8260D
1,1,2,2-Tetrachloroethane	EPA 8260D	EPA 8260D
Tetrachloroethene	EPA 8260D	EPA 8260D
Toluene	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
1,2,3-Trichlorobenzene	EPA 8260D	EPA 8260D
1,2,4-Trichlorobenzene	EPA 8260D	EPA 8260D
1,1,1-Trichloroethane	EPA 8260D	EPA 8260D
1,1,2-Trichloroethane	EPA 8260D	EPA 8260D
Trichloroethene	EPA 8260D	EPA 8260D

Parameter/Analyte	Solid & Chemical Materials	
	Aqueous	**Solid**
Trichlorofluoromethane	EPA 8260D	EPA 8260D
1,2,3-Trichloropropane	EPA 8260D EPA 8260D SIM	EPA 8260D EPA 8260D SIM
1,2,4-Trimethylbenzene	EPA 8260D	EPA 8260D
1,3,5-Trimethylbenzene	EPA 8260D	EPA 8260D
Vinyl Acetate	EPA 8260D	EPA 8260D
Vinyl Chloride	EPA 8260D	EPA 8260D
Xylenes, Total	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
1,2-Xylene (O-Xylene)	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
1,3-Xylene & 1,4-Xylene (M+P-Xylene)	EPA 8260D EPA 8021B	EPA 8260D EPA 8021B
Toxicity Characteristic Leaching Procedure	EPA 3511	EPA 3511
Volatiles Preparation Methods	EPA 1311	EPA 1311
Zero Headspace Extraction	EPA 5030B	EPA 5035A
Total Petroleum Hydrocarbons (TPH)		
Gasoline Range Organics	EPA 8015C AK 101 (AK State Method)	EPA 8015C AK 101 (AK State Method)
GRO Preparation Methods	EPA 5030B	EPA 5035A
Diesel Range Organics	EPA 8015C AK 102 (AK State Method)	EPA 8015C AK 102 (AK State Method)
Residual Range Organics	EPA 8015C AK 103 (AK State Method)	EPA 8015C AK 103 (AK State Method)
DRO/RRO Preparation Methods	EPA 3520C Modified EPA 3535A	EPA 3550C
Extractable Organics (semivolatiles)		
Acenaphthene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Acenaphthylene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Aniline	EPA 8270D	EPA 8270D
Anthracene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Azobenzene	EPA 8270D	EPA 8270D
Benzoic Acid	EPA 8270D	EPA 8270D
Benzo(a)anthracene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Benzo(b)fluoranthene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Benzo(k)fluoranthene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Benzo(ghi)perylene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM

Parameter/Analyte	**Solid & Chemical Materials**	
	Aqueous	**Solid**
Benzo(a)pyrene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Benzyl Alcohol	EPA 8270D	EPA 8270D
Bis (2-chloroethoxy) Methane	EPA 8270D	EPA 8270D
Bis (2-chloroethyl) Ether	EPA 8270D	EPA 8270D
Bis (2-chloroisopropyl) Ether	EPA 8270D	EPA 8270D
Bis (2-ethylhexyl) Phthalate	EPA 8270D	EPA 8270D
4-bromophenylphenyl Ether	EPA 8270D	EPA 8270D
Butyl Benzyl Phthalate	EPA 8270D	EPA 8270D
Carbazole	EPA 8270D	EPA 8270D
4-Chloroaniline	EPA 8270D	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D	EPA 8270D
1-Chloronaphthalene	EPA 8270D	EPA 8270D
2-Chloronaphthalene	EPA 8270D	EPA 8270D
2-Chlorophenol	EPA 8270D	EPA 8270D
4-Chlorophenyl Phenyl Ether	EPA 8270D	EPA 8270D
Chrysene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Dibenzo(a,h)anthracene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Dibenzofuran	EPA 8270D	EPA 8270D
1,2-Dichlorobenzene	EPA 8270D	EPA 8270D
1,3-Dichlorobenzene	EPA 8270D	EPA 8270D
1,4-Dichlorobenzene	EPA 8270D	EPA 8270D
3,3'-Dichlorobenzidine	EPA 8270D	EPA 8270D
2,4-Dichlorophenol	EPA 8270D	EPA 8270D
2,6-Dichlorophenol	EPA 8270D	EPA 8270D
Diethyl Phthalate	EPA 8270D	EPA 8270D
2,4-Dimethylphenol	EPA 8270D	EPA 8270D
Dimethyl Phthalate	EPA 8270D	EPA 8270D
di-n-Butyl Phthalate	EPA 8270D	EPA 8270D
di-n-Octyl Phthalate	----------------------------	EPA 8270D
2,4-Dinitrophenol	EPA 8270D	EPA 8270D
2,4-Dinitrotoluene	EPA 8270D	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D	EPA 8270D
Fluoranthene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Fluorene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Hexachlorobenzene	EPA 8270D	EPA 8270D
Hexachlorobutadiene	EPA 8270D	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D	EPA 8270D
Hexachloroethane	EPA 8270D	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Isophorone	EPA 8270D	EPA 8270D

Parameter/Analyte	Solid & Chemical Materials	
	Aqueous	Solid
1-Methylnaphthalene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
2-Methylnaphthalene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
2-Methyl-4,6-dinitrophenol	EPA 8270D	EPA 8270D
2-Methylphenol (As O cresol)	EPA 8270D	EPA 8270D
3 & 4-Methylphenol (As P & M cresol)	EPA 8270D	EPA 8270D
Naphthalene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
2-Nitroaniline	EPA 8270D	EPA 8270D
3-Nitroaniline	EPA 8270D	EPA 8270D
4-Nitroaniline	EPA 8270D	EPA 8270D
Nitrobenzene	EPA 8270D	EPA 8270D
2-Nitrophenol	EPA 8270D	EPA 8270D
4-Nitrophenol	EPA 8270D	EPA 8270D
n-Nitrosodimethylamine	EPA 8270D	EPA 8270D
n-Nitrosodi-n-propylamine	EPA 8270D	EPA 8270D
n-Nitrosodiphenylamine	EPA 8270D	EPA 8270D
Pentachlorophenol	EPA 8270D	EPA 8270D
Phenanthrene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Phenol	EPA 8270D	EPA 8270D
Pyrene	EPA 8270D EPA 8270D SIM	EPA 8270D EPA 8270D SIM
Pyridine	EPA 8270D	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D	EPA 8270D
Pesticides/Herbicides/PCBs		
Aldrin	EPA 8270D SIM	EPA 8270D SIM
alpha-BHC	EPA 8270D SIM	EPA 8270D SIM
alpha-Chlordane	EPA 8270D SIM	EPA 8270D SIM
beta-BHC	EPA 8270D SIM	EPA 8270D SIM
delta-BHC	EPA 8270D SIM	EPA 8270D SIM
gamma-BHC	EPA 8270D SIM	EPA 8270D SIM
gamma-Chlordane	EPA 8270D SIM	EPA 8270D SIM
Chlordane (technical)	EPA 8270D SIM	EPA 8270D SIM
4,4'-DDD	EPA 8270D SIM	EPA 8270D SIM
4,4'-DDE	EPA 8270D SIM	EPA 8270D SIM
4,4'-DDT	EPA 8270D SIM	EPA 8270D SIM
Dieldrin	EPA 8270D SIM	EPA 8270D SIM
Endosulfan I	EPA 8270D SIM	EPA 8270D SIM
Endosulfan II	EPA 8270D SIM	EPA 8270D SIM
Endosulfan Sulfate	EPA 8270D SIM	EPA 8270D SIM
Endrin	EPA 8270D SIM	EPA 8270D SIM

Parameter/Analyte	**Solid & Chemical Materials**	
	Aqueous	**Solid**
Endrin Aldehyde	EPA 8270D SIM	EPA 8270D SIM
Endrin Ketone	EPA 8270D SIM	EPA 8270D SIM
Heptachlor	EPA 8270D SIM	EPA 8270D SIM
Heptachlor Epoxide	EPA 8270D SIM	EPA 8270D SIM
Methoxychlor	EPA 8270D SIM	EPA 8270D SIM
PCB-1016 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1221 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1232 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1242 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1248 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1254 (Aroclor)	EPA 8082A	EPA 8082A
PCB-1260 (Aroclor)	EPA 8082A	EPA 8082A
Semivolatile Extraction Methods	EPA 3520C Modified EPA 3535A	EPA 3550C EPA 3665A
Toxaphene	EPA 8270D SIM	EPA 8270D SIM
Toxicity Characteristic Leaching Procedure	EPA 1311	EPA 1311
Hazardous Waste Characteristics		
Corrosivity	EPA 9040C	EPA 9045D
Ignitability	EPA 1020B	----------------------------

Accredited Laboratory

A2LA has accredited

SGS NORTH AMERICA INC. - ALASKA DIVISION

Anchorage, AK

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2017, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.3 of the DoD/DOE Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated *April 2017*).

Presented this 10th day of December 2019.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2944.01
Valid to December 31, 2021
Revised April 16, 2020

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

FIGURES

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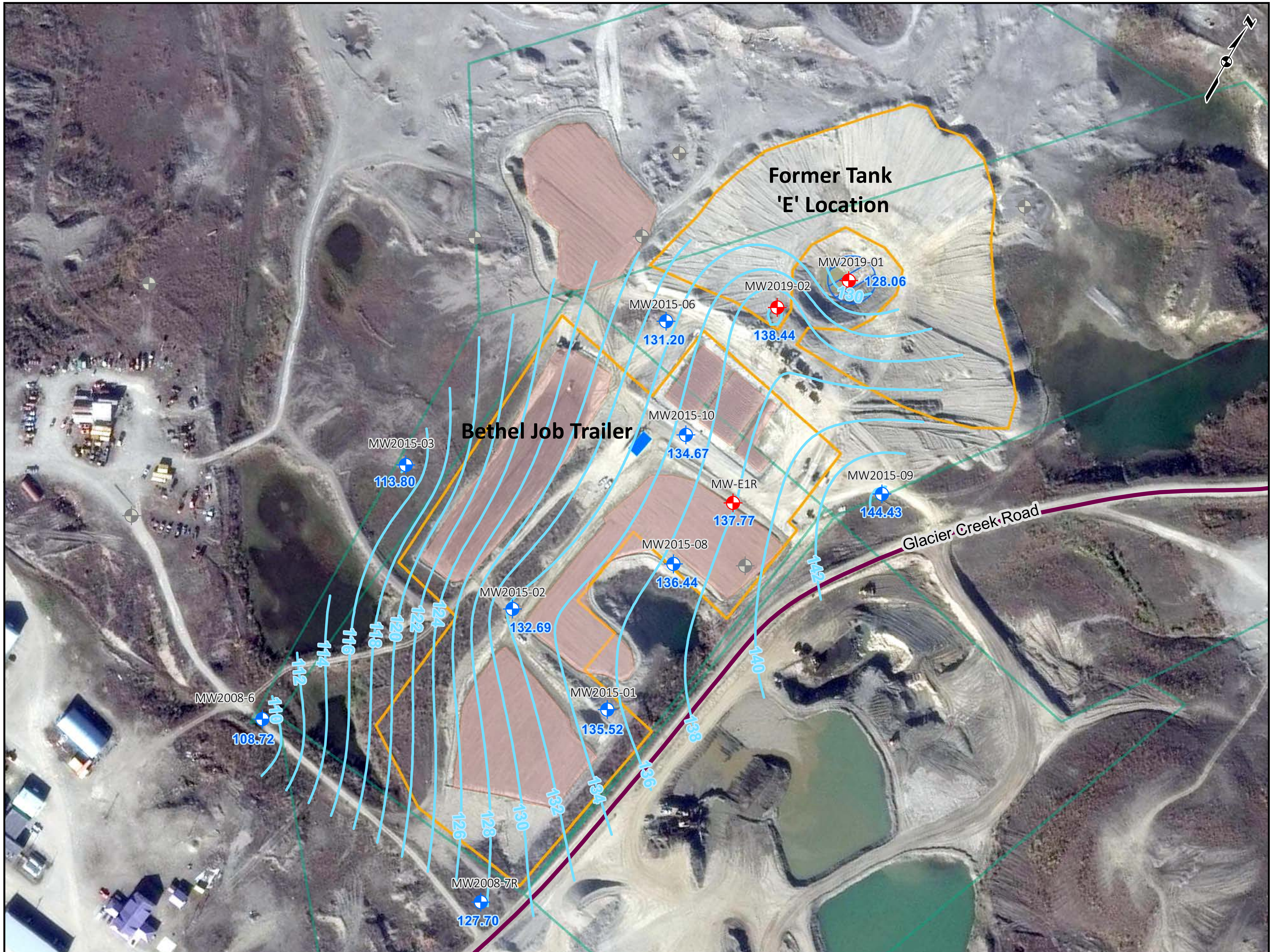
1 INCH

2019 GROUNDWATER SAMPLING REPORT
NOME TANK SITE 'E' POL CONTAMINATION

NOME, ALASKA

2019 GROUNDWATER ELEVATION CONTOURS



LEGEND:

- No exceedance in 2019
- Exceedance in 2019 (POL)
- Decommissioned 2019

Site Features

- Former Tank 'E' Location
- Landfarming Cells
- Excavation and Landfarm Boundaries
- Mining Claim Boundaries
- Bethel Job Trailer
- Road
- 120 Groundwater Elevation Contour (NAVD88 feet)
- 115.10 Groundwater Elevation (NAVD88 feet)

Abbreviations:

Bethel	Bethel Environmental Solutions, LLC
GIS	geographic information system
NAVD88	North American Vertical Datum of 1988
POL	petroleum, oil, and lubricants
WGS84	World Geodetic System 1984

Notes:

1. Depth to groundwater is posted next to wells. These were measured in October 2019. Elevations are in NAVD88 feet for all wells.
2. Groundwater elevation contours were generated with Surfer 16 and are in NAVD88 feet.
3. Aerial imagery and site features are taken from supplementary GIS materials provided with the final report on 2016 field activities:
   U.S. Army Corps of Engineers, 2017b. *Final 2016 Report: Tank Demolition and Contaminated Soil Removal, Nome Tank Site 'E' Formerly Used Defense Site F10AK0052-11*. Prepared by Bethel Environmental Solutions, LLC. June. F10AK0052-11_07.08_0501_p
4. Map produced using ESRI ArcMap v. 10.7.
5. Wells decommissioned or destroyed prior to 2019 are not shown on this figure.

UNIVERSAL TRANSVERSE MERCATOR PROJECTION ZONE 3

VERTICAL DATUM ***NAVD88***
HORIZONTAL DATUM ***WGS84***

200 100 0 200

SCALE IN U.S. SURVEY FEET

CONTRACT No.:	TASK ORDER No.:	FIGURE:
W911KB-17-D-0020	W911KB18F0023	**4-1**
DATE:	DRAWN:	
1/28/2020	AFS	

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