FINAL

Appendix B: Quality Assurance Project Plan for the Former Eatonville Landfill

Ecology Facility Site ID No. 85933

September 2021

Prepared for:

Weyerhaeuser

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Abbreviations and Acronyms

°C	degrees Celsius
APEX	Apex Laboratories, LLC
CFR	Code of Federal Regulations
DQO	data quality objective
Ecology	Washington State Department of Ecology
EDD	electronic data deliverable
EIM	Environmental Information Management System
EPA	U.S. Environmental Protection Agency
FM	Field Manager
FS	feasibility study
GSI	GSI Water Solutions, Inc.
IDW	investigation-derived waste
ISM	incremental sampling methodology
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LHG	Licensed Hydrogeologist
LIMS	laboratory information management system
MDL	method detection limit
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate
MTCA	State of Washington Model Toxics Control Act
Order	2021 Agreed Order No. 20072
PE	Professional Engineer
PM	Project Manager
QAM	quality assurance manual
QAPP	Quality Assurance Project Plan
QA	quality assurance
QC	quality control
RI	remedial investigation
RIWP	Remedial Investigation Work Plan
RPD	relative percent difference
SAC	Sampling and Analysis Coordinator
SAP	Sampling and Analysis Plan
Site	Former Eatonville Landfill
SOP	standard operating procedure
TCLP	toxicity characteristic leaching procedure
Vista	Vista Analytical Laboratory

VOC	volatile organic compound
Weyerhaeuser	Weyerhaeuser Company

SECTION 1: Introduction

This Quality Assurance Project Plan (QAPP) for the Former Eatonville Landfill (Site)[1] is an appendix to the Remedial Investigation Work Plan (RIWP). This QAPP was prepared by GSI Water Solutions, Inc. (GSI) on behalf of Weyerhaeuser Company (Weyerhaeuser) and the Town of Eatonville, Washington, in accordance with the requirements of the 2021 Agreed Order No. 20072 (Order) between the Washington State Department of Ecology (Ecology), the Town of Eatonville, and Weyerhaeuser, pursuant to the Washington State Model Toxics Control Act (MTCA; Revised Code of Washington 70.105D.010) and MTCA regulations (Washington Administrative Code Chapter 173-340). The Eatonville Landfill is shown in Figure 1.

This QAPP describes the quality assurance (QA)/quality control (QC) procedures that will be used during the remedial investigation (RI) process at the Site to ensure the data collected are of appropriate quality and will be useable to meet project objectives.

The purpose of the work described in this QAPP and associated Sampling and Analysis Plans (SAPs) is to support the RI/feasibility study (FS) efforts in determining what remedial actions are required to comply with current MTCA regulations and a draft Cleanup Action Plan for public review. This QAPP will be relevant to all investigations; event-specific SAPs will be developed to describe each phase of work.

1.1 Background

Detailed information on the site background and problem definition can be found in the RIWP, to which this QAPP is an appendix.

The Site consists of an approximately rectangular parcel of about 2.25 acres of land owned by Weyerhaeuser and located in the Nisqually State Park, west of Eatonville, Pierce County, Washington (see Figure 1). The Site has been identified by Ecology as a State Cleanup Site with Facility Site ID No. 85933. The RI activities supported by this QAPP are designed to meet the following objectives:

- Develop and describe RI activities to collect, develop, and evaluate sufficient information regarding the Site to allow completion of the RI/FS and to support the selection of a cleanup action.
- Develop and describe sufficient RI activities to characterize the distribution of hazardous substances present at the Site and the potential threat(s) to human health and the environment.

1.2 Project Organization

The field investigation program conducted during the RI will be performed by a team of experienced scientists and engineers from GSI and will be supported by contractors with the expertise and equipment capable of meeting the requirements described in this QAPP. The analytical program described in this QAPP will be led by certified specialty environmental laboratories for the selected analytical groups. The work will also require the services of a third-party data validation specialist. Table 1 lists key project staff and their contact information. Members of the project team are expected to communicate on a routine basis to ensure the data produced from RI field programs meet project objectives.

[1] For the purposes of the Remedial Investigation Work Plan (RIWP), the Site encompasses the real property currently owned by Weyerhaeuser Company. The final site definition will be developed after completion of the remedial investigation/feasibility study (RI/FS).

The project organization and roles and responsibilities are described in the following sections. Organization information specific to individual investigations will be included in separately developed SAPs.

1.2.1 Ecology Organization and Responsibilities

Ecology is the lead regulatory agency for the activities related to the RI field work and has the primary responsibility for oversight of sampling and monitoring activities. Ecology will oversee activities associated with the RI. The Cleanup Project Manager (PM) for Ecology is Craig Rankine. Table 1 provides Ecology contact information.

1.2.2 Consultant Organization and Responsibilities

GSI was retained by Weyerhaeuser as the lead consultant for the RI/FS and will undertake RI sampling, analysis, and reporting activities. GSI and supporting subcontractors are responsible for implementation of these tasks at the direction of Weyerhaeuser with approval of the approach by Ecology.

Project Management: Josh Bale, a licensed Professional Engineer (PE) in Oregon, Washington, and California working for GSI, serves as the overall PM. Josh oversees all elements of the RI program and directs staff from GSI and subcontractors to complete work in accordance with the Order and applicable planning documents. Josh will lead and work closely with the Field Manager (FM) and other project staff members to ensure that the QAPP objectives are achieved.

The PM generally is responsible to perform the following tasks:

- Oversee the planning and implementation of all field investigation efforts in accordance with SAPs and this QAPP.
- Coordinate with the FM to address any field problems, approve deviations from this QAPP or SAPs, and resolve any emergencies that may arise.
- Communicate with Weyerhaeuser and Ecology regarding the schedule, performance, and any anticipated deviations from investigation and analysis activities.

Field Manager: Ben Johnson, a Licensed Hydrogeologist (LHG) in Washington working for GSI, will be the FM for RI work. He will report directly to the PM and will coordinate and lead all field investigation efforts, the project staff members, and subcontractors supporting these efforts. The FM is responsible to perform the following tasks:

- Direct the planning and implementation of all field sampling efforts, including arranging for necessary sampling contractors, equipment, and overseeing the daily sampling operations that will be defined in separately developed SAPs.
- Oversee all aspects of the field investigations to ensure that the appropriate procedures and methods are used in accordance with SAPs and this QAPP.
- Coordinate closely with the PM, Sampling and Analysis Coordinator (SAC) discussed below, and field staff members to address any field problems, deviations from a developed SAPs, or emergencies that may arise.
- Track the schedule and performance of the sampling and analysis activities according to SAPs and this QAPP in direct coordination with the PM.
- Assist with investigation-derived waste (IDW) management and ensure that waste is removed in a timely manner and in compliance with regulatory requirements.

Sampling and Analysis Coordinator: Genevieve Schutzius, a PE in Oregon working for GSI, will serve as the SAC and will report to the PM and FM. The SAC is responsible to perform the following tasks:

- Coordinate with the analytical laboratories prior to any investigations to obtain appropriate sampling containers and facilitate sample deliveries and chain of custody upon sample collection.
- Serve as the Field QA Manager to ensure that all appropriate field procedures and methods are followed.
- Maintain copies of field documentation and laboratory chain-of-custody forms.
- Assist the FM in tracking the schedule and performance of the sampling and analysis activities according to SAPs and this QAPP.
- Assist with sampling efforts.
- Assist with IDW management.

The SAC may be assisted at times by the FM, PM, and other project staff members.

Quality Assurance: GSI project management staff will be responsible for resolving, in coordination with the SAC, any questions or concerns raised by the laboratories upon sample receipt; tracking laboratory progress; addressing laboratory scheduling issues; and validating chemical data. Data validation results and reports will be reviewed and approved by QA/QC Solutions, LLC, a data validation contractor.

Laboratory Project Managers: Philip Nerenberg, Laboratory Director at Apex Laboratories, LLC. (APEX), will serve as the primary laboratory PM for this project. Jade White, Laboratory Project Manager at Vista Analytical Laboratory, LLC. (Vista), will serve as the laboratory PM for this project for polybrominated diphenyl ethers analysis. The Laboratory PMs carry overall responsibility for the successful and timely completion of sample analyses for this project. The Laboratory PMs will be responsible for ensuring all laboratory QA/QC protocols are followed, facilitating data reports and supporting QC information to GSI, overseeing analytical work, and coordinating with contracted laboratories.

Outside Contractors. Several contractors, including drillers, a geotechnical engineer, and IDW haulers, will be required to complete RI activities. Table 1 shows these contractors.

1.3 Description of Tasks

The tasks to be completed for RI activities under this QAPP include sample collection, laboratory analyses, data quality evaluation, data management, and report preparation. Summaries of these tasks and references to detailed descriptions are provided in this section. A description of the project schedule is also provided.

1.3.1 Sample Collection

RI field tasks may include the collection of surface and subsurface soil/wetland sediment samples, groundwater samples and surface water samples. The rationale for, locations of, and approaches to sample collection for the field elements will be discussed in event-specific SAPs. Section 2 describes the quality practices that will be used during sample collection and processing.

1.3.2 Laboratory Analyses and Deliverables

Chemical analysis of environmental samples, when requested, will be completed by pre-approved laboratories subcontracted to GSI. APEX and Vista will be the primary laboratories for this RI work. APEX and Vista are accredited for environmental work by Ecology in Washington State (Accreditation No. C903-20, U.S. Environmental Protection Agency [EPA] ID No. OR01039). GSI will subcontract laboratories for all analytical services outside of the capabilities of APEX or Vista: Northwest Geotech, Inc., will provide geotechnical

analyses; Eurofins Air Toxics will provide methane analyses; and Analytical Resources, Inc., will provide volatile petroleum hydrocarbon and extractable petroleum hydrocarbon analyses.

Analyses will be completed using EPA methods, *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association et al., 2018), or other established methods that have been approved by Ecology during previous investigations. Table 2 shows the soil/wetland sediment sample analytical program. Table 3 provides a complete analyte list for soil/wetland sediment analyses, with applicable MDLs and MRLs. Table 4 provides the surface water and groundwater sample analysis program. Table 5 provides a complete analyte list for surface water and groundwater analyses, with applicable MDLs and MRLs. Section 4 further describes laboratory analysis procedures.

Laboratory data reports will be provided electronically with electronic data deliverables provided in the output format as required for importing into GSI's database system with eventual outfits files that can be loaded into the Ecology Environmental Information Management System (EIM). Section 3 further describes Laboratory documentation.

1.3.3 Data Quality Evaluation

Data quality evaluation includes data verification and data validation (EPA, 2002a). Data verification involves verifying that correct procedures were followed and control limits were met. Data validation involves evaluating the quality and usability of the data in the context of project objectives. Data verification will initially be completed by the entity that generates the data. Field personnel will verify data generated in the field, and each laboratory will verify data generated at the laboratory in accordance with applicable standard operating procedures (SOPs) and the quality assurance manual (QAM).

Data validation and data verification will be completed by GSI, and validation results will be verified by QA/QC Solutions, LLC. Section 6 describes verification and validation procedures.

1.3.4 Data Management

Field data will be converted from manual entry records into electronic records or electronic field data collection techniques will be used. All laboratory data will be provided electronically and imported directly into the GSI database after data validation. Section 4 further discusses data management procedures.

1.3.5 Report Preparation and Project Schedule

Field sampling reports, which summarize field sampling activities and include sampling locations (i.e., maps), requested sample analyses, sample collection methods, and any deviations from the SAP, will be prepared and submitted to Ecology in accordance with the schedule provided to Ecology in the respective work plans. Section 5 further describes the reports.

RI field sampling will begin after Ecology approves the project SAPs. It is anticipated that the initial field investigation will begin during the fall of 2021. The actual field schedule is contingent on a number of factors and may vary based on Ecology's approval of the RIWP, subcontractor availability, adverse weather, access to sampling locations, equipment conditions, and unforeseen factors.

SECTION 2: Quality Objectives and Criteria for Measurement Data

2.1 Data Quality Objectives

To generate data that meet the project objectives, it is necessary to identify the types of decisions that will be made and the intended uses of the data, then design a data collection program to meet those requirements. These steps are accomplished by applying the data quality objective (DQO) process defined by EPA (EPA, 2006) and Ecology (Ecology, 2016). The DQO process is a systematic planning tool designed to clarify the objectives of and maximize efficiency during the data collection. The DQO process was used to guide the design of data collection to support the RI. The results of the DQO process are a series of qualitative statements intended to clarify the objectives of the project, define the bounding parameters, and identify the error tolerance appropriate for the decisions being made with project information.

There are seven steps in the DQO process, and the output of each step influences the choices of the next step. The DQO process is considered iterative and may be used repeatedly as the project progresses and the decisions change or require a different focus.

The seven DQO steps, along with general statements relative to the Site are as follows:

1. State the Problem. Additional information about soil/wetland sediment and surface water/groundwater contamination is required to support the RI for the Site. The sampling design was developed with consideration of the collection of design-level detail to address site data gaps and facilitate the preparation of the RI/FS.

2. Identify the Goals. SAPs will define the specific sampling activities and are designed to meet the following goals:

- Collect, develop, and evaluate sufficient information regarding the Site to allow completion of the RI/FS.
- Support the selection of a cleanup action.
- Develop and describe sufficient RI activities to characterize the distribution of hazardous substances present at the Site and the potential threat(s) to human health and the environment.
- Collect data to assess the extent of contamination and potential contaminant migration pathways.
- Collect geotechnical data to aid in remedial design.

3. Identify the Information Inputs. Several small groundwater and seep investigations have been completed at the Site and will be used to inform sampling during the RI. Additional soil/wetland sediment, groundwater, and surface water data will be collected during RI sampling efforts to address the goals listed under DQO Step 2.

4. Define the Boundaries of the Study. This step is used to define geographic boundaries and other practical constraints, such as the scale of the evaluation and the time frame. Figure 1 shows the Site. The work conducted under the SAPs and this QAPP includes evaluation of soil/wetland sediment and water within the Site. Section 1 discusses the project schedule.

5. Develop the Analytical Approach. The analytical requirements for RI sampling are established to meet the primary project objectives stated under DQO Step 2. To meet these variable objectives, samples will be analyzed for different analytes depending upon the medium and the specific objective to be met.

Section 4 presents the analytical approach and the detailed analytical specifications for this investigation.

6. Specify Performance or Acceptance Criteria. Uncertainty is present in all measurement data. This step establishes the performance criteria and degree of uncertainty that is acceptable to meet project objectives. These criteria include bias, precision, completeness, sensitivity, and representativeness and comparability. These criteria are addressed by applying QC requirements, which consist of the following:

- Field QC – Proper sampling procedures described in SAPs, including collection of field duplicate samples, equipment rinsate blanks, trip blanks, and temperature blanks
- Laboratory QC – Laboratory QC procedures, MRL checks, method blanks, laboratory control samples (LCS) (e.g., blank spikes), LCS duplicates (LCSDs), matrix spikes (MS), matrix spike duplicates (MSDs), ongoing precision and recovery samples, laboratory blanks, surrogate spikes, calibration check samples, and laboratory duplicates

Section 4 describes the QC and acceptance criteria.

7. Develop the Plan for Obtaining Data. The plan for obtaining the data is the primary subject of project SAPs. The basis of the sampling design, rationale for sampling tasks, and scope of RI sampling events are laid out in the SAPs.

2.2 Data Quality Indicators

The overall quality objective for RI sampling is to develop and implement procedures that will ensure the collection of representative data of known and acceptable quality. The QA procedures and measurements that will be used for this project are based on EPA guidance (EPA, 2002a, 2016, 2017a, and 2017b) and on established laboratory methods from other sources (e.g., ASTM International, 2021; Ecology, 1997). Data quality indicators, such as bias, precision, completeness, sensitivity, and representativeness and comparability, are commonly used to assess the quality of environmental data (EPA, 2002b) and analytical sensitivity will be used to assess conformance of data with these QC criteria. QC criteria are described in this section.

2.2.1 Bias

Bias represents the degree to which a measured concentration conforms to the reference value. The results for LCS, LCSD, MS, MSD, field blanks, and method blanks will be reviewed to evaluate bias of the data. The following calculation is used to determine percent recovery for an MS sample:

$$\%R = \frac{M - U}{C} * 100$$

%R = Percent recovery

M = Measured concentration in the spiked sample

U = Measured concentration in the unspiked sample

C = Concentration of the added spike

The following calculation is used to determine percent recovery for an LCS or reference material:

$$\%R = \frac{M}{C} * 100$$

%R = Percent recovery

M = Measured concentration in the reference material

C = Established reference concentration

Results for field and method blanks can reflect systematic bias that results from contamination of samples during collection or analysis. Any analytes detected in field or method blanks will be evaluated as potential indicators of bias.

2.2.2 Precision

Precision reflects the reproducibility between individual measurements of the same property. Precision will be evaluated using the results of MSDs, laboratory duplicates, and field duplicates. Precision is expressed in terms of the relative percent difference (RPD) for two measurements and the relative standard deviation for three or more measurements. The following equation is used to calculate the RPD between measurements:

$$RPD = \frac{|C1 - C2|}{(C1 + C2)/2} * 100$$

RPD = Relative percent difference

C1 = First measurement

C2 = Second measurement

The relative standard deviation is the ratio of the standard deviation of three or more measurements to the average of the measurements, expressed as a percentage.

2.2.3 Completeness

Completeness is a measure of the amount of data that is determined to be valid in proportion to the amount of data collected. Completeness will be calculated as follows:

$$\text{Completeness (percent)} = \frac{\text{Number of acceptable data points}}{\text{Total number of data points collected}} * 100$$

The DQO for completeness for all components of this project is 90 percent. Data that have been qualified as estimated because the QC criteria were not met will be considered valid for the purpose of assessing completeness. Data that have been qualified as rejected will not be considered valid for the purpose of assessing completeness.

2.2.4 Sensitivity

Analytical sensitivity is a measure of both the ability of the analytical method to detect the analyte and the concentration that can be reliably quantified. The minimum concentration of the analyte that can be detected is the MDL. The minimum concentration that can be reliably quantified is the MRL. Laboratories use both MDLs and MRLs for reporting analyte concentrations, and both values will be used as measures of sensitivity for each analysis.

The MDL is defined as the lowest concentration of an analyte or compound that a method can detect in either a sample or a blank with 99 percent confidence. MDLs are determined by the laboratories using standard procedures outlined in 40 Code of Federal Regulations (CFR) 136, in which seven or more duplicate samples are fortified at 1 to 5 times (but not to exceed 10 times) the expected MDL concentration. The MDL is then determined by calculating the standard deviation of the duplicates and multiplying by the Student's t-factor (e.g., 3.14 for seven duplicates). The laboratories must submit an initial demonstration of MDLs to EPA prior to sample collection.

MRLs are equal to or greater than the lower calibration limit defined by the lowest concentration on the calibration curve. MRLs and MDLs are adjusted for each sample based on the amount of sample extracted, dilution factors, and percent moisture. All laboratories will report detected concentrations above the MRL without qualification and will report detected concentrations between the MDL and the MRL with a J-qualifier indicating the concentration is an estimated value. Non-detect results will be reported to the MRL with a U-qualifier. Tables 3 and 5 list the target MDLs, practical quantitation limits, and MRLs.

2.2.5 Representativeness and Comparability

Representativeness and comparability are qualitative QA/QC parameters. Representativeness is the degree to which data represent a characteristic of an environmental condition. In the field, representativeness will be addressed primarily in the sampling design by the selection of sampling locations and sample collection procedures. In the laboratories, representativeness will be ensured by the proper handling and storage of samples and initiation of analysis within holding times.

Comparability is the qualitative similarity of one data set to another (i.e., the extent to which different data sets can be combined for use). Comparability will be addressed using field and laboratory methods that are consistent with methods and procedures recommended by EPA and commonly used for sampling studies.

2.3 Special Training/Certification

The RI team has been assembled with the requisite skills and experience to successfully complete the investigations. All field personnel have environmental sampling and analysis experience and are fully trained in the collection and documentation of samples, decontamination protocols, and chain-of-custody procedures.

To meet the requirements described in the U.S. Occupational Safety and Health Administration 29 CFR § 1910.120(e)(3), all personnel performing sampling will have completed the 40-hour Hazardous Waste Operations and Emergency Response training course and an 8-hour refresher course, as necessary. Each employer will maintain documentation of certification in the team members' personnel files.

Laboratory personnel training and certification requirements are described in laboratory-specific QAMs (available upon request).

SECTION 3: Documents and Records

Records will be maintained documenting all activities and data related to sample collection and laboratory analyses. Results of data verification and validation activities will also be documented. Procedures for documentation of these activities are described in this section.

The FM will ensure the distribution of the QAPP and SAPs to personnel responsible for environmental sample collection. Any revisions or amendments to these documents will also be provided to the individuals identified in Table 1.

3.1.1 Field Documentation and Reports

The following field records will be maintained throughout the duration of sampling activities:

- Field logbooks
- Field data forms, including soil/wetland sediment and groundwater quality data/logs
- Equipment calibration logs
- Sample description forms
- Core logs
- Sample labels
- Sample chain-of-custody forms
- Sample disposal records and waste manifest forms
- Custody labels

Field logbook and field form entries will be written clearly with enough detail so that participants can reconstruct events later, if necessary. Field logbooks will be bound, with consecutively numbered pages, and removal of any pages is prohibited. Unbiased, accurate language will be used, and entries will be made while activities are in progress or as soon afterward as possible. Field logbook corrections will be made by drawing a single line through the original entry allowing the original entry to be legible. Corrections will be initialed, and the corrected entry will be written alongside the original. When field activities are complete, the field logbook will be retained in the project file at GSI's Portland, Oregon, office.

Information in the field notebook will include personnel, date, time, location designation, sampler, types of samples collected, and general observations. Any deviations from the sampling plan along with the rationale for those changes will also be documented in the field logbook.

In addition to written records, photographs will be taken frequently of sampling procedures and samples to ensure that each element of the RI is completed in accordance with the QAPP. These photographs will be archived for subsequent RI reports.

3.1.2 Field Reports

Corrective Action Record forms (see Attachment 1) will be used, as necessary, to document problems encountered during field activities and corrective actions taken. Field change request forms will be used, as necessary, to document the need for a procedural change or a station location change.

The FM and SAC will ensure that the field team receives the final approved version of work plans and the QAPP prior to the initiation of field activities. Field staff will be notified of corrective actions/field changes in

real time and will be provided with corrective action reports and/or field change documents as they are created.

3.1.3 Laboratory Documentation

Activities and results related to sample analysis will be documented at each laboratory. Internal laboratory documentation procedures are described in the laboratory QAM (available upon request).

Each laboratory will provide a data package for each sample delivery group or analysis batch in a format that complies with the requirements outlined in the most up-to-date EPA guidance. Each data package will contain information required for a complete QA review and may include the following:

- A cover letter discussing analytical procedures and any difficulties encountered
- A case narrative referencing or describing the procedures used and discussing any analytical problems and deviations from SOPs and this QAPP
- Chain-of-custody and cooler receipt forms
- A summary of analyte concentrations (to two significant figures, unless otherwise justified), and applicable MRLs and MDLs
- Laboratory data qualifier codes appended to analyte concentrations, as appropriate, and a summary of code definitions
- Sample preparation and cleanup logs
- Instrument tuning check data
- Initial and continuing calibration data, including instrument printouts and quantification summaries, for all analytes
- Results for method and calibration blanks
- Results for method-specific QA/QC checks, including but not limited to surrogate spikes, internal standards, LCS, MS samples, MSD samples, and laboratory duplicate or triplicate samples provided on summary forms
- Instrument data quantification reports for the analyses and samples
- Copies of laboratory worksheets and standard preparation logs
- Sample run logs

Data will be delivered in electronic format to GSI, who will be responsible for oversight of data verification and validation and for archiving the final data and data quality reports in the project file. GSI will maintain data packages and electronic data deliverables (EDDs) for chemical analyses.

Laboratory data will be maintained by GSI for a period as required by Ecology in the Order. These data will include the original instrument data files, reduced and verified data stored in the laboratory information management system (LIMS), and final hard-copy and electronic data deliverables. The laboratories will obtain approval from GSI prior to discarding these data.

3.1.4 Data Quality Documentation

The EDDs provided by each laboratory will be verified against the validated data provided in the hard copy (PDF) data package. Data validation reports will be prepared by GSI. Section 6 describes data validation procedures that will be included in reports. Data validation reports will be included as appendices to

applicable design evaluation reports. Any limitations to the usability of the data will also be discussed in the RI Report.

Changes to the laboratory data entered into the database made as a result of the data validation process will be documented in an electronic log file. Any data tables prepared from the database for data users will include the qualifiers that were applied by the laboratories during analysis and during data validation, unless otherwise requested.

SECTION 4: Data Generation and Acquisition

4.1 Sampling Process Design

Sampling programs for various media that may be sampled (soil/wetland sediment, surface water, groundwater, and landfill gases [using field equipment methods for gas sampling]) will be described in the SAPs. Sampling programs are designed to generate data for meeting project objectives.

The complete sampling design, including station locations, types and numbers of samples that will be collected, the rationale for the design, the analyses to be performed, and the sampling methods to be used are described in the SAPs.

4.1.1 Sample Requirements

Table 6 summarizes the sample containers, sample size requirements, preservation, and holding times that will be used for soil/wetland sediment samples. Table 7 summarizes the sample containers, sample size requirements, preservation, and holding times that will be used for surface water and groundwater. Solid and liquid sample containers will have screw-type lids to ensure adequate sealing of the bottles. Lids of glass containers will have Teflon inserts to prevent sample contact with the plastic lid and to improve the quality of the seal. Sample containers will be wrapped with bubble wrap and/or foam sleeves, as appropriate, to protect from breakage. Sample containers will be placed in individual re-sealable zipper bags unique to sampling locations to ensure the isolation of samples in the case of breakage.

Sample containers will be supplied by the laboratories. Commercially available certified clean sample containers will be used, and each laboratory will maintain a record of certification from the supplier. The bottle shipment documentation will include batch numbers for the bottles. With this documentation, bottles can be traced to the supplier and bottle wash analysis results can be reviewed.

Prior to shipment to the field, the project laboratories will add the required preservatives (i.e., methanol) to the sample bottles when required, and will supply additional preservative in a transportable container, as needed. The laboratory will note the lot number of the preservative on the bottle kit paperwork.

4.1.2 Corrective Actions

The PM will conduct field performance audits, as necessary, during each field program, which may identify the need for corrective actions. The FM will immediately institute the necessary corrective actions, complete a Corrective Action Record form (see Attachment 1), and conduct an additional audit to ensure that the correct procedures continue to be followed.

Field personnel will be responsible for monitoring the quality of field measurements and sample collection and ensuring that QC procedures are being followed. If conditions create a need to deviate from a SAP or this QAPP, sampling actions taken will be consistent with the project objectives and the FM will be notified immediately. Most of the field condition-driven deviations from the SAP will be reported by the field teams to the FM for consultation and determination of the appropriate response. These types of field changes include moving a sampling location due to obstacles or refusal, modifying target depths or acceptable sample recovery at core locations, and other routine field decisions. When these conditions arise, the field team and FM will use their best professional judgment to determine the appropriate course of action and will notify the appropriate Ecology contacts of the proposed modification in scope. Minor modifications to the scope may be made without Ecology's approval. Changes to the SAP will be documented and summarized for Ecology as defined in the Order.

Additional information regarding corrective actions and related documentation is provided in Section 4.3.2 and in the SAPs.

4.2 Sample Handling, Custody, and Transport

Procedures for sample handling and custody control will be followed to ensure that samples collected during investigations are traceable. The FM and SAC will be responsible for ensuring proper sample handling, custody, and transport.

4.2.1 Sample Identification and Labeling

During sample collection, a unique code will be assigned to each sample as part of the data record. The ID code will indicate the sample type (piezometer groundwater, incremental sampling methodology [ISM] soil sample, drilled soil boring, hand auger soil/wetland sediment, seep/surface water, geotechnical), sampling location, and date of collection. The first component of the sample ID will contain an abbreviation for the sample type followed by the station ID or sampling area, with leading zeros used for stations for ease of data management and correct sorting. Station IDs for samples in transects will consist of a transect number and station letter (i.e., 02A). Additionally, the sampling date (month and year) will be added to the sample ID. Abbreviations for sample types are listed below. Additional codes may be adopted, if necessary, to reflect sampling needs.

- PZ or MW = piezometer or monitoring well groundwater sample
- DU = ISM soil sample decision unit
- SB = drilled soil boring sample
- HA = hand auger soil/wetland sediment sample
- SW = seep or surface water sample
- GT = geotechnical sample
-

Example sample IDs include: PZ01_0921 (first piezometer groundwater sample, collected in September 2021), DU01_0921 (cover soil ISM sample), HA-01B-0921 (second hand auger sample from transect 01, collected in September 2021), and GW02-0921 (second hollow auger groundwater sample, collected in September 2021).

4.2.2 Field to Laboratory Sample Handling, Custody, and Transport

The FM and SAC will be responsible for ensuring samples are placed in the proper containers at the correct temperature and for sample tracking in the field. Containers will typically be assembled and labeled prior to each day's field event. Samples will be placed in proper containers in the field and stored on ice during the workday to keep temperatures at approximately 0 to 6 degrees Celsius (°C). Samples will be shipped or couriered to the laboratory on a frequent schedule depending on sample volume.

The chain-of-custody record documents the transfer of sample custody from the time of sampling to laboratory receipt. Samples are considered to be in custody if they are in the custodian's view, stored in a secure place with restricted access, or placed in a container secured with custody seals. The FM and SAC will be responsible for relinquishing the sealed and packaged samples to the designated analytical laboratory courier service or commercial transport company (e.g., FedEx) using proper chain-of-custody forms (an example of a typical chain-of-custody form is included in Attachment 2).

The chain-of-custody record will be signed by each person who has custody of the samples and will accompany the samples at all times.

The Laboratory PM will be responsible for upholding intra-laboratory and sub-laboratory sample transfer and tracking records through all stages of laboratory processing. The sample custodian at each laboratory will accept custody and log samples into LIMS. The sample custodian will check that the chain-of-custody forms were properly completed and signed, that a sample receipt form is completed for each cooler, and that samples are stored under the required temperature conditions. Each laboratory will deliver a copy of the chain-of-custody and sample receipt form to GSI. Any breaks in the chain of custody or non-conformances will be noted and reported in writing to GSI as soon as possible. Copies of the chain-of-custody documentation will be included in laboratory and QA/QC reports.

Specific laboratory chain-of-custody procedures are described in the laboratory QAM for each designated laboratory.

4.2.3 Archive Samples

Archive samples, if collected, will be submitted to the storing laboratory, and will be stored at -20 ± 4 °C. Sample material remaining after analysis will be archived by the laboratory that completed the analysis. The laboratories will maintain chain-of-custody documentation and proper storage conditions for the entire time that the samples are in their possession. Laboratories for this project will store the archive and excess samples until Ecology provides direction for disposal or sample hold times are reached.

4.3 Analytical Methods

Modifications may be made to laboratory analytical methods, as necessary and technically feasible, to improve MRLs. Chemical analyses will be completed using EPA methods, *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association et al., 2018), or other established methods that have been approved by Ecology during previous investigations. The analytical laboratories used for soil/wetland sediment, surface water and groundwater analyses are either accredited by Ecology (see Attachment 3) or certified through the National Environmental Laboratory Accreditation Program; therefore, copies of SOPs are not included in the QAPP. These procedures conform to the laboratory QAMs. Tables 2 and 4 show laboratory methods to be used in the RI sampling.

Specifications regarding the analyte suites and analytical quantification limits for soil/wetland sediment and surface water/groundwater samples are provided in Tables 3 and 5.

Specific instruments to be used, laboratory decontamination procedures, sample disposal procedures, and laboratory-specific methods are described in detail in the laboratory-specific SOPs and the QAM for each laboratory.

Laboratory QC protocols will be followed to ensure that data quality and representation are in accordance with method requirements. Section 4 describes laboratory QC protocols in detail.

4.3.1 Conditional Analyses

Toxicity characteristic leaching procedure (TCLP; EPA preparation Method 1311) will be used in metals analyzed by EPA 6020B, when necessary, for waste profiling characterization. Once metals concentration data are available, the PM will decide whether to run TCLP extractions via EPA 1311/6020B.

4.3.2 Laboratory Corrective Actions

Laboratory personnel will be responsible for monitoring the quality of analytical measurements and ensuring that QC procedures are being followed. When nonconforming work is identified, the laboratory will investigate the source of the nonconformance and may halt work or withhold test reports, as necessary. Corrective actions will be taken immediately, together with making a decision about the acceptability of the nonconforming work. Results showing the sources of nonconformance, and the corrective action steps implemented will be documented and reported to the appropriate levels of management.

Additional information regarding corrective actions and related documentation is provided in the laboratory QAM.

4.4 Quality Control

QC samples will be prepared in the field and at the laboratories to monitor the bias and precision of the sample collection and analysis procedures.

4.4.1 Field Quality Control Samples

Field QC samples are used to evaluate the effectiveness of sample homogenization and variability within samples (e.g., field duplicates), evaluate potential sources of sample cross-contamination (e.g., equipment rinsate blanks, trip blanks), or confirm proper shipping and storage conditions (e.g., temperature blanks). Section 6 describes validation criteria and procedures for field QC samples.

4.4.1.1 Field Duplicates

Duplicate samples are two samples of the same matrix, collected at the same location and time (to the extent possible), with an assumed level of overall homogeneity within the sample matrix. The same sampling techniques and analytical methods are performed on both samples. The data for field duplicates are used to evaluate homogeneity within the samples. Field duplicate samples will be collected at a frequency of 5 percent of the total samples collected. Attempts will be made to collect a field duplicate sample of every 20th sample collected. Field duplicates will be submitted to the laboratory as blind, to test laboratory precision.

4.4.1.2 Rinsate Blanks

Equipment blanks will be collected at least once during the sampling event or during each mobilization for sampling. Equipment blanks will be collected from the soil/wetland sediment sampling devices after decontamination to evaluate the decontamination process. The equipment blank sample will be collected by passing laboratory-supplied deionized water over all sampling equipment used during the day. The sample will be collected directly into the sample containers.

The following is an example of an equipment blank sample ID:

EB01_0921: First equipment blank sample collected in September 2021

4.4.1.3 Trip and Storage Blanks

Trip blanks are used to monitor for cross-contamination during sample shipment and storage. Trip blanks are used only for samples that will be analyzed for volatile constituents (i.e., volatile organic compounds [VOCs]). Storage blanks for VOCs will be prepared and analyzed at the laboratory according to standard laboratory procedures. A pair of VOC blanks will be prepared for each cooler at the laboratory, but only one of the blanks will be shipped to the field. This blank will become a trip blank in a cooler of samples. The second

blank will be retained at the laboratory and will become the storage blank when the cooler is received at the laboratory. One trip blank per each shipment or courier of coolers to the laboratory for analysis of volatile constituents will be analyzed. If the shipment includes multiple coolers, the trip blank analyzed will be arbitrarily selected from one of the coolers. If results for the trip blank indicate that samples may be contaminated, the storage blank associated with a given cooler will be analyzed. Results for the storage blank will indicate whether contamination is related to field and shipping conditions or to laboratory storage conditions.

4.4.1.4 Temperature Blanks

Temperature blanks are used to ensure proper shipping and storage conditions. A temperature blank is included with each cooler of samples by the laboratory. The laboratory sample custodian measures the temperature of the water in the jar to determine the temperature of the cooler upon receipt at the laboratory.

4.4.2 Laboratory Quality Control Samples

Extensive and detailed requirements for laboratory QC procedures are provided in the method protocols that will be used for this study (see Tables 2 and 4). Every method protocol includes descriptions of QC procedures and many incorporate additional QC requirements by reference to separate QC chapters. QC requirements include control limits and, in many cases, requirements for corrective action. QC procedures will be completed by the laboratories, as required in each method protocol, and as indicated in this QAPP.

The frequency of analysis for applicable LCS, LCSDs, MS, MSDs or laboratory duplicates, and method blanks will be one for every 20 samples or one per extraction batch, whichever is more frequent. Applicable surrogate spikes and internal standards will be added to every field sample and QC sample, as required by the method. Additional sample volume will be provided to the laboratory for creation of MS/MSDs and detailed requirements will be described in SAPs. Calibration procedures will be completed at the frequency specified in each method description. As required for EPA SW-846 methods (EPA, 2021), performance-based control limits have been established by each laboratory. These and other control limits specified in the method descriptions will be used by the laboratories to establish the acceptability of the data or the need for reanalysis of the samples. Tables 3 and 5 provide control limits for surrogate compounds, LCS/LCSDs, and MS/MSDs.

4.5 Instrument/Equipment Maintenance

Analytical instrumentation will be tested, inspected, and maintained by each laboratory. Only authorized personnel will operate analytical instrumentation and testing equipment. Instrument maintenance and repair will be documented in maintenance logs or record books.

Laboratory instruments will be properly calibrated, and the calibrations will be verified with the appropriate check standards and calibration blanks for each parameter before beginning analysis, as specified in method- and/or laboratory-specific SOPs.

When field instruments are used, the equipment will be tested, inspected, calibrated, and maintained according to manufacturer specifications. Only authorized and trained personnel will operate field equipment.

4.6 Inspection/Acceptance of Supplies and Consumables

The quality of supplies and consumables used during sample collection and laboratory analyses can affect the quality of the project data. Equipment that comes into contact with the samples must be sufficiently

clean to prevent detectable contamination, and the analyte concentrations must be accurate in all standards used for calibration and QC purposes.

Reusable sampling equipment (e.g., mixing bowls and spoons used for homogenization) will be decontaminated between sampling locations using Alconox, Liquinox, or similar laboratory-grade detergent. Equipment rinsate blanks will be used to evaluate decontamination procedures. Certified cleaned and documented sample containers will be provided by the laboratories. Containers will be visually inspected prior to use, and any suspect containers will be discarded.

Reagents of appropriate purity and suitably cleaned laboratory equipment will also be used for all stages of laboratory analyses. Details for acceptance requirements for supplies and consumables at the laboratories are provided in the laboratory SOPs and QAM. All supplies will be obtained from reputable suppliers with appropriate documentation or certification. Supplies will be inspected to confirm that they meet use requirements, and certification records will be retained by GSI (i.e., for supplies used in the field) or the laboratories.

4.7 Data Management

Data for RI sampling will be generated during field efforts and as a result of laboratory analyses. The final repository for sample information will be a database. Other information produced during RI sampling (e.g., field forms, photographs) will be included as appendices to reports submitted to Ecology for review and approval.

4.7.1 Field Data

Daily field records (a combination of field logbooks and field data sheets) and navigational records will make up the main documentation for field activities. The specific records and procedures that will be used most frequently during field investigations will be defined in SAPs.

Field data generated during sample collection and sample preparation will be manually entered into field notes and core logs or using electronic field data collection methods. Data outputs from these sources will be entered into a Microsoft Excel workbook template directly from the field notes and core logs. These data include station location coordinates, station names, sampling dates, sample identification codes, and additional station and sample information (e.g., water depth, sample type).

4.7.2 Laboratory Data

A wide variety of manually entered and electronic instrument data are generated at the laboratories. Data are manually entered into the following:

- Standard logbooks
- Storage temperature logs
- Balance calibration log
- Instrument logs
- Sample preparation and analysis worksheets
- Maintenance logs
- Individual laboratory notebooks
- Results tables for conventional and physical analyses (i.e., grain-size distribution).

LIMS is the central data management tool for each laboratory. Manual data entry into LIMS is quality checked at the laboratory. Data collected from each laboratory instrument, either manually or electronically, are reviewed and confirmed by analysts before reporting. LIMS is used for every aspect of sample processing, including sample log-in and tracking, instrument data storage and processing, generation of data reports for sample and QC results, and preparation of EDDs.

Laboratory data will be entered directly into the GSI project database from the EDD.

SECTION 5: Assessment and Oversight

A formal chain of communication has been established for this project to optimize the flow of information and to keep project management apprised of activities and events. The field team will stay in close verbal contact with the SAC and FM during all phases of the project. These individuals will, in turn, keep the PM informed of any significant developments in the field or at the laboratories.

5.1 Assessments and Response Actions

5.1.1 Assessments

Assessment activities for RI sampling will include (1) formal field performance and technical audits performed by the PM at least once during each field sampling event; (2) laboratory internal audits, as described in the laboratory QAM; and (3) routine internal performance and peer reviews of each phase of project tasks throughout the duration of the project.

Technical review of intermediate and final work products generated for this project will be completed throughout the course of the sample collection, laboratory analyses, data validation, and data management activities to ensure that phases of work follow the QA procedures outlined in this QAPP and in SAPs. Any problems that are encountered will be resolved between the reviewer and the person completing the work. Any problems that cannot be easily resolved or that affect the final quality of the work product will be brought to the attention of the Weyerhaeuser and Ecology PMs. Ecology will be notified of any problems that may affect the final outcome of the project.

Each laboratory has implemented a review system that serves as a formal surveillance mechanism for laboratory activities. The analyst initially verifies the accuracy of the data and conformance of calibrations and QC results to control limits. A second review of sample, calibration, and QC results is conducted by the section supervisor, a senior chemist, or other qualified personnel, as designated by each laboratory.

5.1.2 Response Actions

Any project team member who discovers or suspects a non-conformance is responsible for reporting the non-conformance to the PM, the SAC, or the FM, as applicable.

When a non-conformance is identified, a corrective action plan will be prepared. The plan identifies the corrective action, the person or organization responsible for implementing the corrective action, and procedures for confirming that the desired results are produced.

Corrective Action Record forms (see Attachment 1) will be used to document non-conformances and subsequent corrective actions. The FM will review these forms and approve the corrective action. The PM may submit the Corrective Action Record forms to Weyerhaeuser and Ecology, as appropriate. The SAC is ultimately responsible for implementation of appropriate corrective action and maintenance of a complete record of QC issues and corrective actions. The Laboratory PM and GSI project management staff are responsible for maintaining records of QC issues related to laboratory work. The SAC will be responsible for evaluating reported non-conformances, conferring with the FM, and executing the corrective action as developed and scheduled.

5.2 Reports to Ecology

Results from RI sampling will be included within the appropriate data evaluation reports, which will be submitted to Ecology for review and approval. The reports will include a summary of relevant field sampling

activities, including sampling locations shown on maps, requested sample analyses, sample collection methods, and a discussion of any deviations from the SAP and QAPP, as applicable.

Data packages and EDDs will be prepared by the laboratory upon completion of analyses for each sample delivery group. Copies of Corrective Action Record forms generated at the laboratory will also be included with the data package.

Validated data for the environmental samples will be delivered to Ecology in electronic format with submission of the applicable reports for upload into the EIM. A data validation report will be prepared covering all collected data by the data validator. These reports and the validated data will be approved by a third-party data validation contractor (i.e., QA/QC Solutions, LLC). A summary of any significant data quality issues will be provided to Ecology with the data submittal for sampling efforts.

SECTION 6: Data Validation and Usability

Data generated in the field and at the laboratories will be verified and validated according to criteria and procedures described in this section. Data quality and usability will be evaluated, and a discussion will be included in data evaluation reports for each investigation event.

6.1 Criteria for Data Review, Verification, and Validation

Field and laboratory data for this project will undergo a formal verification and validation process. Errors found during the verification of field data and laboratory data will be corrected prior to release of the final data.

Data verification and validation will be conducted in accordance with *Guidance on Environmental Data Verification and Validation* (EPA, 2002a). Data verification and validation for organic compounds and metals will be completed according to methods described in the EPA guidance for data review (EPA, 2009, 2016, 2017a, and 2017b). Performance-based control limits established by the laboratory and control limits provided in the method protocols will be used to evaluate data quality and determine the need for data qualification. Laboratory control limits for surrogate compounds, LCS/LCSDs, and MS/MSDs are provided in Tables 3 and 5 and will be used for data validation.

No guidelines are available for validation of data for conventional analyses, physical testing, and diesel and/or oil hydrocarbons; therefore, these data will be validated using procedures described in *National Functional Guidelines for Inorganic Data Superfund Data Review* and *National Functional Guidelines for Organic Superfund Methods Data Review* (EPA, 2017a and EPA, 2017b, respectively) that are applicable to the method. In this instance, the QC measurement results required by the applicable methods will be reviewed and qualification of the data will be completed, as necessary, based on method-specific and laboratory-established control limits.

Results for field duplicates will be evaluated against an RPD control limit of 50. Equipment rinsate blanks will be evaluated, and data qualifiers derived from detections in the rinsate blank will be applied to analytical results in the same manner as detections in method blanks, as described in the applicable EPA guidance documents for data review (EPA, 2002a, 2016, 2017a, and 2017b).

6.2 Verification and Validation Methods

Validation and reporting of data quality will follow method-specific and laboratory-established QC requirements, as applicable, as well as the guidelines that may be applicable to the analytical methods used in the following documents:

- Method-specific and laboratory-established QC requirements, as applicable
- *Guidance on Environmental Data Verification and Validation* (EPA, 2002a)
- *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA, 2009)
- *National Functional Guidelines for High Resolution Superfund Methods Data Review* (EPA, 2016)
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA, 2017a)
- *National Functional Guidelines for Organic Superfund Methods Data Review* (EPA, 2017b)

GSI staff will perform an abbreviated data validation review (Stage 2B) (EPA, 2009) on the data reported from the laboratory. The following laboratory deliverables (if present) will be reviewed:

- Case narratives discussing analytical problems (if any) and procedures
- Chain-of-custody documentation to verify completeness of the data set
- Laboratory summary result forms to verify that analytical holding times were met
- Results for applicable method blanks, trip blanks, and equipment rinsate blanks will be evaluated to determine whether an analyte reported as detected in a sample was the result of possible contamination introduced at the laboratory or in the field
- Results for applicable surrogate compound, LCS, LCSD, MS, and MSD recoveries to assess analytical accuracy
- Results for applicable laboratory duplicate sample, LCSD, and MSD analyses to assess analytical precision
- Results of all other method-specific QC measurements
- Review of laboratory summaries of analytical results

If significant QC issues result in the rejection of data that are critical to decision making, Weyerhaeuser and Ecology will be notified immediately so that decisions on resampling and/or reanalysis can be made prior to project completion.

6.3 Reconciliation with User Requirements

The goal of data validation is to determine the quality of each data point and to identify data points that do not meet the project criteria. Nonconforming data may be qualified as undetected, estimated, or rejected as unusable during data validation if criteria for data quality are not met. Rejected data will not be used for any purpose. An explanation of the rejected data will be included in the applicable site characterization summary report for each sampling event.

Data qualified as estimated will be used for the intended purposes and will be appropriately qualified in the final database. These data may be less precise or less accurate than unqualified data. The data users, in cooperation with project management staff, will evaluate the effect of the inaccuracy or imprecision of the qualified data on the ability to meet project goals.

SECTION 7: References

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Ecology. 2016. *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*. Washington State Department of Ecology. Publication No. 04-03-030. December 2016.

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EPA. 2006. *USEPA Guidance in Systematic Planning Using the Data Quality Objectives Process*. EPA QA/G-4. United States Environmental Protection Agency, Office of Environmental Information, Washington, DC.

EPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. OSWER No. 9200.1-85. EPA 540-R-08-005. January 13, 2009. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC.

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EPA. 2017a. *National Functional Guidelines for Inorganic Data Superfund Data Review*. Final. OLEM 9355.0-135. EPA-540-R-2017-001. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. January 2017.

EPA. 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review*. Final. OLEM 9355.0-136. USEPA-540-R-2017-002. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. June 2017.

TABLES

Table 1
Project Team Contact Information

Project Role	Name/Affiliation	Phone	Email
Regulatory			
Cleanup Project Manager / Hydrogeologist	Craig Rankine, RG, LHG / Ecology	C: (360) 216-9394	cran461@ecy.was.gov
Weyerhaeuser Company			
Project Manager	Carol Wiseman	C: (360) 562-7733	Carol.Wiseman@weyerhaeuser.com
Contractors			
Project Manager	Josh Bale, PE / GSI	O: (971) 200-8502 Ext. 116 C: (530) 276-4188	jbale@gsiws.com
Field Manager	Ben Johnson, LHG	O: (971) 200-8520 C: (503) 679-4543	bjohnson@gsiws.com
Sampling and Analysis Coordinator	Genevieve Schutzius, PE	O: (971) 200-8514 C: (970) 420-5869	gschutzius@gsiws.com
Data Validation Support	James Mc Ateer / QA/QC Solutions, LLC	O: (503)763-6948 C: (503) 881-1501	jjmcateer@msn.com
Laboratory Project Manager	Philip Nerenberg / Apex Laboratories	O: (970) 879-6590 Ext. 606	pnerenberg@apex-labs.com
Laboratory Project Manager	Jade White / Vista Analytical Laboratory, Inc.	O: (916) 673-1520	jwhite@vista-analytical.com
Geotechnical Contractor	Mike Greenfield / Greenfield Geotechnical	O: (540) 392-1741	mike@greenfieldgeotechical.com
Drilling Contractor	Nick Stroberger / Stratus	O: (503) 985-7912 C: (503) 851-8452	ns@stratuscorp.net

Abbreviations and Acronyms

C = cell number
GSI = GSI Water Solutions, Inc.
LHG = Licensed Hydrogeologist
O = office number
PE = Professional Engineer
RG = Registered Geologist

Table 2
Soil/Wetland Sediment Sample Analytical Program

Analyte Group	Parameter	Laboratory Method
Metals	Arsenic	EPA 6020B, ICP-MS (TCLP Preparation Method 1311 if any metals exceed background)
	Barium	
	Beryllium	
	Cadmium	
	Chromium, Total	
	Cobalt	
	Copper	
	Lead	
	Nickel	
	Selenium	
	Thallium	
	Vanadium	
	Zinc	
	Chromium VI	EPA 7196A
VOCs	VOCs	EPA 8260D
SVOCs / PAHs	SVOCs / PAHs	EPA 8270E
	cPAHs (BaP eq)	
PCBs	PCB Aroclors	EPA 8082A
Hydrocarbons	VPH	NWVPH
	EPH	NWEPH
Other Constituents	Total Organic Carbon	SM 5310 B MOD[1]
Grain Size	Grain Size	ASTM D422 MOD[2]
Geophysical Parameters	Moisture content	ASTM D2216
	In situ dry density	ASTM D7263
	Fines content	ASTM D1140
	Atterberg Limits	ASTM D4318
	Triaxial Compressive Strength	ASTM D2850[3] / ASTM D4767[4]
	1-D Consolidation	ASTM D2435
	Direct Shear	ASTM D2974 / ASTM D3080[5]

Notes

[1] Modification is to use PSEP 1997 specified sample preparation (i.e., sample drying, homogenization, and acidification to remove inorganic carbon) for high-temperature combustion followed by nondispersive infrared detection.

[2] The modifications are that the break between fines (silts and clay) and very fine sand is 63 µm (ASTM no. 230 sieve), and the break between very coarse sand and gravels (and coarser material) is 2 mm (ASTM no. 10 sieve). The ASTM D422mod method covers both coarse and finer particle sizes.

[3] Requires a Shelby tube with at least 6 inches of intact sample or material enough to remold a 6-inch sample given a specified moisture content and density.

[4] Requires a Shelby tube with at least 18 inches of intact, homogenous sample for a full set of 3 points.

[5] Requires either cylindrical sampling device with diameter 2.35 inches or larger and minimum 6 inches of recovery, or 900g of bulk material and a target moisture content and dry density for remolding.

Abbreviations and Acronyms

ASTM = ASTM International
BaP eq = benzo(a)pyrene equivalents
cPAH = carcinogenic polycyclic aromatic hydrocarbon
EPA = U.S. Environmental Protection Agency
EPH = extractable petroleum hydrocarbons
g = grams
ICP-MS = inductively coupled plasma mass spectrometry
mm = millimeters
MOD = modification
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
SM = Standard Method
SVOC = semivolatile organic compound
TCLP = toxicity characteristic leaching procedure
VOC = volatile organic compound
VPH = volatile petroleum hydrocarbons
WA = Washington
µm = micrometers

Table 3
Analytical Quantitation Limits - Soil/Wetland Sediment Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
Total Metals												
Antimony	7440-36-0	APEX	EPA 6020A (ICP-MS)	0.500	1.00	mg/kg	-	20	75-125	20	80-120	20
Arsenic	7440-38-2	APEX		0.500	1.00	mg/kg	-	20	75-125	20	80-120	20
Beryllium	7440-41-7	APEX		0.100	0.200	mg/kg	-	20	75-125	20	80-120	20
Cadmium	7440-43-9	APEX		0.100	0.200	mg/kg	-	20	75-125	20	80-120	20
Chromium	7440-47-3	APEX		0.500	1.00	mg/kg	-	20	75-125	20	80-120	20
Copper	7440-50-8	APEX		1.00	2.00	mg/kg	-	20	75-125	20	80-120	20
Lead	7439-92-1	APEX		0.100	0.200	mg/kg	-	20	75-125	20	80-120	20
Mercury	7439-97-6	APEX		0.0400	0.0800	mg/kg	-	20	75-125	20	80-120	20
Nickel	7440-02-0	APEX		1.00	2.00	mg/kg	-	20	75-125	20	80-120	20
Selenium	7782-49-2	APEX		0.500	1.00	mg/kg	-	20	75-125	20	80-120	20
Silver	7440-22-4	APEX		0.100	0.200	mg/kg	-	20	75-125	20	80-120	20
Thallium	7440-28-0	APEX		0.100	0.200	mg/kg	-	20	75-125	20	80-120	20
Zinc	7440-66-6	APEX		2.00	4.00	mg/kg	-	20	75-125	20	80-120	20
Chromium (VI)	18540-29-9	APEX	EPA 7196A	0.225	0.450	mg/kg	-	20	75-125	20	80-120	20
VOCs												
Acetone	67-64-1	APEX	EPA 8260D	500	1000	µg/kg	-	30	36-164	30	80-120	30
Acrylonitrile	107-13-1	APEX		50.0	100	µg/kg	-	30	65-134	30	80-120	30
Benzene	71-43-2	APEX		5.00	10.0	µg/kg	-	30	77-121	30	80-120	30
Bromobenzene	108-86-1	APEX		12.5	25.0	µg/kg	-	30	78-121	30	80-120	30
Bromochloromethane	74-97-5	APEX		25.0	50.0	µg/kg	-	30	78-125	30	80-120	30
Bromodichloromethane	75-27-4	APEX		25.0	50.0	µg/kg	-	30	75-127	30	80-120	30
Bromoform	75-25-2	APEX		50.0	100	µg/kg	-	30	67-132	30	80-120	30
Bromomethane	74-83-9	APEX		500	500	µg/kg	-	30	53-143	30	80-120	30
2-Butanone (MEK)	78-93-3	APEX		250	500	µg/kg	-	30	51-148	30	80-120	30
n-Butylbenzene	104-51-8	APEX		25.0	50.0	µg/kg	-	30	70-128	30	80-120	30
sec-Butylbenzene	135-98-8	APEX		25.0	50.0	µg/kg	-	30	73-126	30	80-120	30
tert-Butylbenzene	98-06-6	APEX		25.0	50.0	µg/kg	-	30	73-125	30	80-120	30
Carbon disulfide	75-15-0	APEX		250	500	µg/kg	-	30	63-132	30	80-120	30
Carbon tetrachloride	56-23-5	APEX		25.0	50.0	µg/kg	-	30	70-135	30	80-120	30
Chlorobenzene	108-90-7	APEX		12.5	25.0	µg/kg	-	30	79-120	30	80-120	30
Chloroethane	75-00-3	APEX		250	500	µg/kg	-	30	59-139	30	80-120	30
Chloroform	67-66-3	APEX		25.0	50.0	µg/kg	-	30	78-123	30	80-120	30
Chloromethane	74-87-3	APEX		125	250	µg/kg	-	30	50-136	30	80-120	30
2-Chlorotoluene	95-49-8	APEX		25.0	50.0	µg/kg	-	30	75-122	30	80-120	30
4-Chlorotoluene	106-43-4	APEX		25.0	50.0	µg/kg	-	30	72-124	30	80-120	30
Dibromochloromethane	124-48-1	APEX		50.0	100	µg/kg	-	30	74-126	30	80-120	30
1,2-Dibromo-3-chloropropane	96-12-8	APEX		125	250	µg/kg	-	30	61-132	30	80-120	30
1,2-Dibromoethane (EDB)	106-93-4	APEX		25.0	50.0	µg/kg	-	30	78-122	30	80-120	30
Dibromomethane	74-95-3	APEX		25.0	50.0	µg/kg	-	30	78-125	30	80-120	30
1,2-Dichlorobenzene	95-50-1	APEX		12.5	25.0	µg/kg	-	30	78-121	30	80-120	30
1,3-Dichlorobenzene	541-73-1	APEX		12.5	25.0	µg/kg	-	30	77-121	30	80-120	30
1,4-Dichlorobenzene	106-46-7	APEX		12.5	25.0	µg/kg	-	30	75-120	30	80-120	30
Dichlorodifluoromethane	75-71-8	APEX		50.0	100	µg/kg	-	30	29-149	30	80-120	30
1,1-Dichloroethane	75-34-3	APEX		12.5	25.0	µg/kg	-	30	76-125	30	80-120	30
1,2-Dichloroethane (EDC)	107-06-2	APEX		12.5	25.0	µg/kg	-	30	73-128	30	80-120	30
1,1-Dichloroethene	75-35-4	APEX		12.5	25.0	µg/kg	-	30	70-131	30	80-120	30
cis-1,2-Dichloroethene	156-59-2	APEX		12.5	25.0	µg/kg	-	30	77-123	30	80-120	30
trans-1,2-Dichloroethene	156-60-5	APEX		12.5	25.0	µg/kg	-	30	74-125	30	80-120	30
1,2-Dichloropropane	78-87-5	APEX		12.5	25.0	µg/kg	-	30	76-123	30	80-120	30
1,3-Dichloropropane	142-28-9	APEX		25.0	50.0	µg/kg	-	30	77-121	30	80-120	30
2,2-Dichloropropane	594-20-7	APEX		25.0	50.0	µg/kg	-	30	67-133	30	80-120	30
1,1-Dichloropropene	563-58-6	APEX		25.0	50.0	µg/kg	-	30	76-125	30	80-120	30
cis-1,3-Dichloropropene	10061-01-5	APEX		25.0	50.0	µg/kg	-	30	74-126	30	80-120	30
trans-1,3-Dichloropropene	10061-02-6	APEX		25.0	50.0	µg/kg	-	30	71-130	30	80-120	30
Ethylbenzene	100-41-4	APEX		12.5	25.0	µg/kg	-	30	76-122	30	80-120	30
Hexachlorobutadiene	87-68-3	APEX		50.0	100	µg/kg	-	30	61-135	30	80-120	30
2-Hexanone	591-78-6	APEX		250	500	µg/kg	-	30	53-145	30	80-120	30
Isopropylbenzene	98-82-8	APEX		25.0	50.0	µg/kg	-	30	68-134	30	80-120	30
4-Isopropyltoluene	99-87-6	APEX		25.0	50.0	µg/kg	-	30	73-127	30	80-120	30
Methylene chloride	75-09-2	APEX		250	500	µg/kg	-	30	70-128	30	80-120	30
4-Methyl-2-pentanone (MiBK)	108-10-1	APEX		250	500	µg/kg	-	30	65-135	30	80-120	30
Methyl tert-butyl ether (MTBE)	1634-04-4	APEX		25.0	50.0	µg/kg	-	30	73-125	30	80-120	30
Naphthalene	91-20-3	APEX		50.0	100	µg/kg	-	30	62-129	30	80-120	30
n-Propylbenzene	103-65-1	APEX		12.5	25.0	µg/kg	-	30	73-125	30	80-120	30
Styrene	100-42-5	APEX		25.0	50.0	µg/kg	-	30	76-124	30	80-120	30
1,1,1,2-Tetrachloroethane	630-20-6	APEX		12.5	25.0	µg/kg	-	30	78-125	30	80-120	30

Table 3
Analytical Quantitation Limits - Soil/Wetland Sediment Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
1,1,2,2-Tetrachloroethane	79-34-5	APEX	EPA 8270E	25.0	50.0	µg/kg	-	30	70-124	30	80-120	30
Tetrachloroethene (PCE)	127-18-4	APEX		12.5	25.0	µg/kg	-	30	73-128	30	80-120	30
Toluene	108-88-3	APEX		25.0	50.0	µg/kg	-	30	77-121	30	80-120	30
1,2,3-Trichlorobenzene	87-61-6	APEX		125	250	µg/kg	-	30	66-130	30	80-120	30
1,2,4-Trichlorobenzene	120-82-1	APEX		125	250	µg/kg	-	30	67-129	30	80-120	30
1,1,1-Trichloroethane	71-55-6	APEX		12.5	25.0	µg/kg	-	30	73-130	30	80-120	30
1,1,2-Trichloroethane	79-00-5	APEX		12.5	25.0	µg/kg	-	30	78-121	30	80-120	30
Trichloroethene (TCE)	79-01-6	APEX		12.5	25.0	µg/kg	-	30	77-123	30	80-120	30
Trichlorofluoromethane	75-69-4	APEX		50.0	100	µg/kg	-	30	62-140	30	80-120	30
1,2,3-Trichloropropane	96-18-4	APEX		25.0	50.0	µg/kg	-	30	73-125	30	80-120	30
1,2,4-Trimethylbenzene	95-63-6	APEX		25.0	50.0	µg/kg	-	30	75-123	30	80-120	30
1,3,5-Trimethylbenzene	108-67-8	APEX		25.0	50.0	µg/kg	-	30	73-124	30	80-120	30
Vinyl chloride	75-01-4	APEX		12.5	25.0	µg/kg	-	30	56-135	30	80-120	30
Xylenes, total	1330-20-7	APEX		37.5	75.0	µg/kg	-	30	78-124	30	80-120	30
1,4-Difluorobenzene (Surr)	540-36-3	APEX		-	-	Surrogate	80-120	-	-	-	-	-
Toluene-d8 (Surr)	2037-26-5	APEX		-	-	Surrogate	80-120	-	-	-	-	-
4-Bromofluorobenzene (Surr)	460-00-4	APEX		-	-	Surrogate	79-120	-	-	-	-	-
SVOCs / PAHs												
Acenaphthene	83-32-9	APEX		1.33	2.67	µg/kg	-	30	40-123	30	40-123	30
Acenaphthylene	208-96-8	APEX		1.33	2.67	µg/kg	-	30	32-132	30	32-132	30
Anthracene	120-12-7	APEX		1.33	2.67	µg/kg	-	30	47-123	30	47-123	30
Benz(a)anthracene	56-55-3	APEX		1.33	2.67	µg/kg	-	30	49-126	30	49-126	30
Benzo(a)pyrene	50-32-8	APEX		2.00	4.00	µg/kg	-	30	45-129	30	45-129	30
Benzo(b)fluoranthene	205-99-2	APEX		2.00	4.00	µg/kg	-	30	45-132	30	45-132	30
Benzo(k)fluoranthene	207-08-9	APEX		2.00	4.00	µg/kg	-	30	47-132	30	47-132	30
Benzo(g,h,i)perylene	191-24-2	APEX		1.33	2.67	µg/kg	-	30	43-134	30	43-134	30
Chrysene	218-01-9	APEX		1.33	2.67	µg/kg	-	30	50-124	30	50-124	30
Dibenz(a,h)anthracene	53-70-3	APEX		1.33	2.67	µg/kg	-	30	45-134	30	45-134	30
Fluoranthene	206-44-0	APEX		1.33	2.67	µg/kg	-	30	50-127	30	50-127	30
Fluorene	86-73-7	APEX		1.33	2.67	µg/kg	-	30	43-125	30	43-125	30
Indeno(1,2,3-cd)pyrene	193-39-5	APEX		1.33	2.67	µg/kg	-	30	45-133	30	45-133	30
1-Methylnaphthalene	90-12-0	APEX		2.67	5.33	µg/kg	-	30	40-120	30	40-120	30
2-Methylnaphthalene	91-57-6	APEX		2.67	5.33	µg/kg	-	30	38-122	30	38-122	30
Naphthalene	91-20-3	APEX		2.67	5.33	µg/kg	-	30	35-123	30	35-123	30
Phenanthrene	85-01-8	APEX		1.33	2.67	µg/kg	-	30	50-121	30	50-121	30
Pyrene	129-00-0	APEX		1.33	2.67	µg/kg	-	30	47-127	30	47-127	30
Carbazole	86-74-8	APEX		2.00	4.00	µg/kg	-	30	50-123	30	50-123	30
Dibenzofuran	132-64-9	APEX		1.33	2.67	µg/kg	-	30	44-120	30	44-120	30
2-Chlorophenol	95-57-8	APEX		6.67	13.3	µg/kg	-	30	34-121	30	34-121	30
4-Chloro-3-methylphenol	59-50-7	APEX		13.3	26.7	µg/kg	-	30	45-122	30	45-122	30
2,4-Dichlorophenol	120-83-2	APEX		6.67	13.3	µg/kg	-	30	40-122	30	40-122	30
2,4-Dimethylphenol	105-67-9	APEX		6.67	13.3	µg/kg	-	30	30-127	30	30-127	30
2,4-Dinitrophenol	51-28-5	APEX		33.3	66.7	µg/kg	-	30	10-137	30	10-137	30
4,6-Dinitro-2-methylphenol	534-52-1	APEX		33.3	66.7	µg/kg	-	30	29-132	30	29-132	30
2-Methylphenol	95-48-7	APEX		3.33	6.67	µg/kg	-	30	32-122	30	32-122	30
3+4-Methylphenol(s)	-	APEX		3.33	6.67	µg/kg	-	30	34-120	30	34-120	30
2-Nitrophenol	88-75-5	APEX		13.3	26.7	µg/kg	-	30	36-123	30	36-123	30
4-Nitrophenol	100-02-7	APEX		13.3	26.7	µg/kg	-	30	30-132	30	30-132	30
Pentachlorophenol (PCP)	87-86-5	APEX		13.3	26.7	µg/kg	-	30	25-133	30	25-133	30
Phenol	108-95-2	APEX		2.67	5.33	µg/kg	-	30	34-121	30	34-121	30
2,3,4,6-Tetrachlorophenol	58-90-2	APEX		6.67	13.3	µg/kg	-	30	44-125	30	44-125	30
2,3,5,6-Tetrachlorophenol	935-95-5	APEX		6.67	13.3	µg/kg	-	30	40-120	30	40-120	30
2,4,5-Trichlorophenol	95-95-4	APEX		6.67	13.3	µg/kg	-	30	41-124	30	41-124	30
Nitrobenzene	98-95-3	APEX		13.3	26.7	µg/kg	-	30	34-122	30	34-122	30
2,4,6-Trichlorophenol	88-06-2	APEX		6.67	13.3	µg/kg	-	30	39-126	30	39-126	30
Bis(2-ethylhexyl)phthalate	117-81-7	APEX		20.0	40.0	µg/kg	-	30	51-133	30	51-133	30
Butyl benzyl phthalate	85-68-7	APEX		13.3	26.7	µg/kg	-	30	48-132	30	48-132	30
Diethylphthalate	84-66-2	APEX		13.3	26.7	µg/kg	-	30	50-124	30	50-124	30
Dimethylphthalate	131-11-3	APEX		13.3	26.7	µg/kg	-	30	48-124	30	48-124	30
Di-n-butylphthalate	84-74-2	APEX		13.3	26.7	µg/kg	-	30	51-128	30	51-128	30
Di-n-octyl phthalate	117-84-0	APEX		13.3	26.7	µg/kg	-	30	45-140	30	45-140	30
N-Nitrosodimethylamine	62-75-9	APEX		3.33	6.67	µg/kg	-	30	23-120	30	23-120	30
N-Nitroso-di-n-propylamine	621-64-7	APEX		3.33	6.67	µg/kg	-	30	36-120	30	36-120	30
N-Nitrosodiphenylamine	86-30-6	APEX		3.33	6.67	µg/kg	-	30	38-127	30	38-127	30
Bis(2-Chloroethoxy) methane	111-91-1	APEX		3.33	6.67	µg/kg	-	30	36-121	30	36-121	30
Bis(2-Chloroethyl) ether	111-44-4	APEX		3.33	6.67	µg/kg	-	30	31-120	30	31-120	30
2,2'-Oxybis(1-Chloropropane)	108-60-1	APEX		3.33	6.67	µg/kg	-	30	33-131	30	33-131	30

Table 3
Analytical Quantitation Limits - Soil/Wetland Sediment Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
Hexachlorobenzene	118-74-1	APEX		1.33	2.67	µg/kg	-	30	45-122	30	45-122	30
Hexachlorobutadiene	87-68-3	APEX		3.33	6.67	µg/kg	-	30	32-123	30	32-123	30
Hexachlorocyclopentadiene	77-47-4	APEX		6.67	13.3	µg/kg	-	30	10-140	30	10-140	30
Hexachloroethane	67-72-1	APEX		3.33	6.67	µg/kg	-	30	28-120	30	28-120	30
2-Chloronaphthalene	91-58-7	APEX		1.33	2.67	µg/kg	-	30	41-120	30	41-120	30
1,2,4-Trichlorobenzene	120-82-1	APEX		3.33	6.67	µg/kg	-	30	34-120	30	34-120	30
4-Bromophenyl phenyl ether	101-55-3	APEX		3.33	6.67	µg/kg	-	30	46-124	30	46-124	30
4-Chlorophenyl phenyl ether	7005-72-3	APEX		3.33	6.67	µg/kg	-	30	45-121	30	45-121	30
Aniline	62-53-3	APEX		6.67	13.3	µg/kg	-	30	10-120	30	10-120	30
4-Chloroaniline	106-47-8	APEX		3.33	6.67	µg/kg	-	30	17-120	30	17-120	30
2-Nitroaniline	88-74-4	APEX		26.7	53.3	µg/kg	-	30	44-127	30	44-127	30
3-Nitroaniline	99-09-2	APEX		26.7	53.3	µg/kg	-	30	33-120	30	33-120	30
4-Nitroaniline	100-01-6	APEX		26.7	53.3	µg/kg	-	30	70-138	30	70-138	30
2,4-Dinitrotoluene	121-14-2	APEX		13.3	26.7	µg/kg	-	30	48-126	30	48-126	30
2,6-Dinitrotoluene	606-20-2	APEX		13.3	26.7	µg/kg	-	30	46-124	30	46-124	30
Benzoic acid	65-85-0	APEX		167	333	µg/kg	-	30	10-140	30	10-140	30
Benzyl alcohol	100-51-6	APEX		6.67	13.3	µg/kg	-	30	29-122	30	29-122	30
Isophorone	78-59-1	APEX		3.33	6.67	µg/kg	-	30	30-122	30	30-122	30
Azobenzene (1,2-DPH)	103-33-3	APEX		3.33	6.67	µg/kg	-	30	39-125	30	39-125	30
Benzidine	92-87-5	APEX		26.7	53.3	µg/kg	-	30	10-120	30	10-120	30
Bis(2-Ethylhexyl) adipate	103-23-1	APEX		33.3	66.7	µg/kg	-	30	61-121	30	61-121	30
3,3'-Dichlorobenzidine	91-94-1	APEX		26.7	53.3	µg/kg	-	30	22-121	30	22-121	30
1,2-Dinitrobenzene	528-29-0	APEX		33.3	66.7	µg/kg	-	30	44-120	30	44-120	30
1,3-Dinitrobenzene	99-65-0	APEX		33.3	66.7	µg/kg	-	30	43-127	30	43-127	30
1,4-Dinitrobenzene	100-25-4	APEX		33.3	66.7	µg/kg	-	30	37-132	30	37-132	30
Pyridine	110-86-1	APEX		6.67	13.3	µg/kg	-	30	10-120	30	10-120	30
Nitrobenzene-d5 (Surr)	4165-60-0	APEX		-	-	Surrogate	37-122	-	-	-	-	-
2-Fluorobiphenyl (Surr)	321-60-8	APEX		-	-	Surrogate	44-120	-	-	-	-	-
Phenol-d6 (Surr)	13127-88-3	APEX		-	-	Surrogate	33-122	-	-	-	-	-
p-Terphenyl-d14 (Surr)	1718-51-0	APEX		-	-	Surrogate	54-127	-	-	-	-	-
2-Fluorophenol (Surr)	367-12-4	APEX		-	-	Surrogate	35-120	-	-	-	-	-
2,4,6-Tribromophenol (Surr)	118-79-6	APEX		-	-	Surrogate	39-132	-	-	-	-	-
Total PAHs	--	-		-	-	-	-	-	-	-	-	-
cPAHs (BaP eq)	--	-		-	-	-	-	-	-	-	-	-
PCBs												
Aroclor 1016	12674-11-2	APEX	EPA 8082A	5.00	10.0	µg/kg	60-125	30	47-134	30	47-134	30
Aroclor 1221	11104-28-2	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1232	11141-16-5	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1242	53469-21-9	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1248	12672-29-6	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1254	11097-69-1	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1260	11096-82-5	APEX		5.00	10.0	µg/kg	60-125	30	53-140	30	53-140	30
Aroclor 1262	37324-23-5	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Aroclor 1268	11100-14-4	APEX		5.00	10.0	µg/kg	60-125	30	-	-	-	30
Total PCBs	-	APEX		-	-	-	-	-	-	-	-	-
Decachlorobiphenyl (Surr)	2051-24-3	APEX		-	-	Surrogate	60-125	-	-	-	-	-
Hydrocarbons												
C5-C6 Aliphatics	-	ARI	NWVPH	4500	9000	µg/kg	-	-	70-130	30	70-130	30
C6-C8 Aliphatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
C8-C10 Aliphatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
C10-C12 Aliphatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
C8-C10 Aromatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
C10-C12 Aromatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
C12-C13 Aromatics	-	ARI		4500	9000	µg/kg	-	-	70-130	30	70-130	30
Methyl tert-butyl ether (MTBE)	1634-04-4	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
Benzene	71-43-2	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
Toluene	108-88-3	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
Ethylbenzene	100-41-4	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
m,p-Xylene	-	ARI		900	1800	µg/kg	-	-	70-130	30	70-130	30
o-Xylene	95-47-6	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
1,2,3-Trimethylbenzene	526-73-8	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
Naphthalene	91-20-3	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
1-Methylnaphthalene	90-12-0	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
n-Pentane	109-66-0	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
n-Hexane	110-54-3	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
n-Octane	111-65-9	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
n-Decane	124-18-5	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30

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Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
n-Dodecane	112-40-3	ARI		450	900	µg/kg	-	-	70-130	30	70-130	30
2,5-Dibromotoluene (Surr)	615-59-8	ARI		-	-	Surrogate	60-140	-	-	-	-	-
C8-C10 Aliphatics	-	ARI	NWEPH	327	2000	µg/kg	-	30	30-160	30	30-160	30
C10-C12 Aliphatics	-	ARI		128	2000	µg/kg	-	30	30-160	30	30-160	30
C12-C16 Aliphatics	-	ARI		174	2000	µg/kg	-	30	30-160	30	30-160	30
C16-C21 Aliphatics	-	ARI		269	2000	µg/kg	-	30	30-160	30	30-160	30
C21-C34 Aliphatics	-	ARI		193	2000	µg/kg	-	30	30-160	30	30-160	30
1-Chloro-octadecane (Surr)	3386-33-2	ARI		-	-	Surrogate	30-160					
C8-C10 Aromatics	-	ARI		468	2000	µg/kg	-	30	30-160	30	30-160	30
C10-C12 Aromatics	-	ARI		269	2000	µg/kg	-	30	30-160	30	30-160	30
C12-C16 Aromatics	-	ARI		145	2000	µg/kg	-	30	30-160	30	30-160	30
C16-C21 Aromatics	-	ARI		599	2000	µg/kg	-	30	30-160	30	30-160	30
C21-C34 Aromatics	-	ARI		857	2000	µg/kg	-	30	30-160	30	30-160	30
o-Terphenyl (Surr)	92-94-4	ARI		-	-	Surrogate	30-160	-	-	-	-	-
Other Constituents												
Total Organic Carbon	TOC	APEX	SM 5310 B MOD[2]	200	200	mg/kg	-	27	-	-	88-111	27
Grain Size												
Gravel (>2.00mm)	GS-Gravel	APEX	ASTM D422 MOD[3]	0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 4.75 mm sieve (#4)	GS-4.75	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 2.00 mm sieve (#10)	GS-2.00	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
Sand (0.063mm - 2.00mm)	GS-Sand	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.85 mm sieve (#20)	GS-0.850	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.425 mm sieve (#40)	GS-0.425	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.250 mm sieve (#60)	GS-0.250	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.150 mm sieve (#100)	GS-0.150	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.106 mm sieve (#140)	GS-0.106	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.075 mm sieve (#200)	GS-0.075	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
% Retained 0.063 mm sieve (#230)	GS-0.063	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
Silt (0.005mm < 0.063mm)	GS-SILT	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-
Clay (< 0.005 mm)	GS-Clay	APEX		0.0100	0.0100	% of Total	-	-	-	-	-	-

Notes

[1] MDLs and RLs/QLs/MRLs were provided by the laboratory. These are presented for informational purposes only. Data review/validation will be based on the most current precision and accuracy limits in effect at the time of analysis. Detection and reporting limits may change based on actual samples.

[2] Modification is to use PSEP 1997 specified sample preparation (i.e., sample drying, homogenization, and acidification to remove inorganic carbon) for high-temperature combustion followed by nondispersive infrared detection.

[3] The modifications are that the break between fines (silts and clay) and very fine sand is 63 µm (ASTM no. 230 sieve), and the break between very coarse sand and gravels (and coarser material) is 2 mm (ASTM no. 10 sieve). The ASTM D422mod method covers both coarse and finer particle sizes.

Modifications may be made to laboratory analytical methods, as necessary and technically feasible, to improve MRLs.

Abbreviations and Acronyms

µg/kg = micrograms per kilogram
µm = micrometers
% = percent
APEX = Apex Laboratories, LLC
ARI = Analytical Resources, Incorporated
ASTM = ASTM International
BaP eq = benzo(a)pyrene equivalents
BEHP = bis(2-ethylhexyl)phthalate
CAS = Chemical Abstracts Service
cPAHs = carcinogenic polycyclic aromatic hydrocarbons
EPA = U.S. Environmental Protection Agency
ICP-MS = inductively coupled mass spectrometry
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
MDL = method detection limig
mg/kg = milligrams per kilogram
mm = millimeters
MRL = method reporting limit
MS = matrix spike
MSD = matrix spike duplicate
PAHs = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyl
QL = quantitation limit
RL = reporting limit
RPD = relative percent difference
SM = Standard Method
surr = surrogate compound
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds
wt = weight

Table 4
Surface Water and Groundwater Sample Analytical Program

Analyte Group	Parameter	Laboratory Method
Surface Water and Groundwater		
Metals	Arsenic	EPA 6020B / ICP-MS
	Barium	
	Beryllium	
	Cadmium	
	Chromium, Total	
	Cobalt	
	Copper	
	Lead	
	Nickel	
	Selenium	
	Thallium	
	Vanadium	
	Zinc	
	Chromium VI	EPA 218.6
VOCs	VOCs	EPA 8260D
SVOCs/PAHs	SVOCs/PAHs	EPA 8270E
	cPAHs (BaP eq)	
PCBs	PCB Aroclors	EPA 8082A
PBDEs	PBDEs	EPA 1614
Hydrocarbons	VPH	NWVPH
	EPH	NWEPH

Abbreviations and Acronyms

ASTM = ASTM International
BaP eq = benzo(a)pyrene equivalents
cPAHs = carcinogenic polycyclic aromatic hydrocarbons
EPA = U.S. Environmental Protection Agency
EPH = extractable petroleum hydrocarbons
ICP-MS = inductively coupled mass spectrometry
PAHs = polycyclic aromatic hydrocarbons
PBDEs = polybrominated diphenyl ethers
PCBs = polychlorinated biphenyls
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds
VPH = volatile petroleum hydrocarbons

Table 5
Analytical Quantitation Limits - Surface Water and Groundwater Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
Total Metals - Water Samples												
Antimony	7440-36-0	APEX	EPA 6020A (ICP-MS)	0.500	1.00	µg/L	-	20	75-125	20	80-120	20
Arsenic	7440-38-2	APEX		0.500	1.00	µg/L	-	20	75-125	20	80-120	20
Beryllium	7440-41-7	APEX		0.100	0.200	µg/L	-	20	75-125	20	80-120	20
Cadmium	7440-43-9	APEX		0.100	0.200	µg/L	-	20	75-125	20	80-120	20
Chromium	7440-47-3	APEX		0.500	1.00	µg/L	-	20	75-125	20	80-120	20
Copper	7440-50-8	APEX		1.00	2.00	µg/L	-	20	75-125	20	80-120	20
Lead	7439-92-1	APEX		0.100	0.200	µg/L	-	20	75-125	20	80-120	20
Mercury	7439-97-6	APEX		0.0400	0.0800	µg/L	-	20	75-125	20	80-120	20
Nickel	7440-02-0	APEX		1.00	2.00	µg/L	-	20	75-125	20	80-120	20
Selenium	7782-49-2	APEX		0.500	1.00	µg/L	-	20	75-125	20	80-120	20
Silver	7440-22-4	APEX		0.100	0.200	µg/L	-	20	75-125	20	80-120	20
Thallium	7440-28-0	APEX		0.100	0.200	µg/L	-	20	75-125	20	80-120	20
Zinc	7440-66-6	APEX		2.00	4.00	µg/L	-	20	75-125	20	80-120	20
Chromium (VI)	18540-29-9	Weck	EPA 218.6	0.0079	0.02	µg/L	-	10	88 - 112	10	90 - 110	10
VOCs - Water Samples												
Acetone	67-64-1	APEX	EPA 8260D	10.0	20.0	µg/L	-	30	39-160	30	80-120	30
Acrylonitrile	107-13-1	APEX		1.00	2.00	µg/L	-	30	63-135	30	80-120	30
Benzene	71-43-2	APEX		0.100	0.200	µg/L	-	30	79-120	30	80-120	30
Bromobenzene	108-86-1	APEX		0.250	0.500	µg/L	-	30	80-120	30	80-120	30
Bromochloromethane	74-97-5	APEX		0.500	1.00	µg/L	-	30	78-123	30	80-120	30
Bromodichloromethane	75-27-4	APEX		0.500	1.00	µg/L	-	30	79-125	30	80-120	30
Bromoform	75-25-2	APEX		0.500	1.00	µg/L	-	30	66-130	30	80-120	30
Bromomethane	74-83-9	APEX		5.00	5.00	µg/L	-	30	53-141	30	80-120	30
2-Butanone (MEK)	78-93-3	APEX		5.00	10.0	µg/L	-	30	56-143	30	80-120	30
n-Butylbenzene	104-51-8	APEX		0.500	1.00	µg/L	-	30	75-128	30	80-120	30
sec-Butylbenzene	135-98-8	APEX		0.500	1.00	µg/L	-	30	77-126	30	80-120	30
tert-Butylbenzene	98-06-6	APEX		0.500	1.00	µg/L	-	30	78-124	30	80-120	30
Carbon disulfide	75-15-0	APEX		5.00	10.0	µg/L	-	30	64-133	30	80-120	30
Carbon tetrachloride	56-23-5	APEX		0.500	1.00	µg/L	-	30	72-136	30	80-120	30
Chlorobenzene	108-90-7	APEX		0.250	0.500	µg/L	-	30	80-120	30	80-120	30
Chloroethane	75-00-3	APEX		5.00	5.00	µg/L	-	30	60-138	30	80-120	30
Chloroform	67-66-3	APEX		0.500	1.00	µg/L	-	30	79-124	30	80-120	30
Chloromethane	74-87-3	APEX		2.50	5.00	µg/L	-	30	50-139	30	80-120	30
2-Chlorotoluene	95-49-8	APEX		0.500	1.00	µg/L	-	30	79-122	30	80-120	30
4-Chlorotoluene	106-43-4	APEX		0.500	1.00	µg/L	-	30	78-122	30	80-120	30
Dibromochloromethane	124-48-1	APEX		0.500	1.00	µg/L	-	30	74-126	30	80-120	30
1,2-Dibromo-3-chloropropane	96-12-8	APEX		2.50	5.00	µg/L	-	30	62-128	30	80-120	30
1,2-Dibromoethane (EDB)	106-93-4	APEX		0.250	0.500	µg/L	-	30	77-121	30	80-120	30
Dibromomethane	74-95-3	APEX		0.500	1.00	µg/L	-	30	79-123	30	80-120	30
1,2-Dichlorobenzene	95-50-1	APEX		0.250	0.500	µg/L	-	30	80-120	30	80-120	30
1,3-Dichlorobenzene	541-73-1	APEX		0.250	0.500	µg/L	-	30	80-120	30	80-120	30
1,4-Dichlorobenzene	106-46-7	APEX		0.250	0.500	µg/L	-	30	79-120	30	80-120	30
Dichlorodifluoromethane	75-71-8	APEX		0.500	1.00	µg/L	-	30	32-152	30	80-120	30
1,1-Dichloroethane	75-34-3	APEX		0.200	0.400	µg/L	-	30	77-125	30	80-120	30
1,2-Dichloroethane (EDC)	107-06-2	APEX		0.200	0.400	µg/L	-	30	73-128	30	80-120	30
1,1-Dichloroethene	75-35-4	APEX		0.200	0.400	µg/L	-	30	71-131	30	80-120	30
cis-1,2-Dichloroethene	156-59-2	APEX		0.200	0.400	µg/L	-	30	78-123	30	80-120	30
trans-1,2-Dichloroethene	156-60-5	APEX		0.200	0.400	µg/L	-	30	75-124	30	80-120	30
1,2-Dichloropropane	78-87-5	APEX		0.250	0.500	µg/L	-	30	78-122	30	80-120	30
1,3-Dichloropropane	142-28-9	APEX		0.500	1.00	µg/L	-	30	80-120	30	80-120	30
2,2-Dichloropropane	594-20-7	APEX		0.500	1.00	µg/L	-	30	60-139	30	80-120	30
1,1-Dichloropropene	563-58-6	APEX		0.500	1.00	µg/L	-	30	79-125	30	80-120	30
cis-1,3-Dichloropropene	10061-01-5	APEX		0.500	1.00	µg/L	-	30	75-124	30	80-120	30
trans-1,3-Dichloropropene	10061-02-6	APEX		0.500	1.00	µg/L	-	30	73-127	30	80-120	30
Ethylbenzene	100-41-4	APEX		0.250	0.500	µg/L	-	30	79-121	30	80-120	30
Hexachlorobutadiene	87-68-3	APEX		2.50	5.00	µg/L	-	30	66-134	30	80-120	30
2-Hexanone	591-78-6	APEX		5.00	10.0	µg/L	-	30	57-139	30	80-120	30
Isopropylbenzene	98-82-8	APEX		0.500	1.00	µg/L	-	30	72-131	30	80-120	30
4-Isopropyltoluene	99-87-6	APEX		0.500	1.00	µg/L	-	30	77-127	30	80-120	30
Methylene chloride	75-09-2	APEX		5.00	10.0	µg/L	-	30	74-124	30	80-120	30
4-Methyl-2-pentanone (MiBK)	108-10-1	APEX		5.00	10.0	µg/L	-	30	67-130	30	80-120	30
Methyl tert-butyl ether (MTBE)	1634-04-4	APEX		0.500	1.00	µg/L	-	30	71-124	30	80-120	30
Naphthalene	91-20-3	APEX		1.00	2.00	µg/L	-	30	61-128	30	80-120	30

Table 5
Analytical Quantitation Limits - Surface Water and Groundwater Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
n-Propylbenzene	103-65-1	APEX		0.250	0.500	µg/L	-	30	76-126	30	80-120	30
Styrene	100-42-5	APEX		0.500	1.00	µg/L	-	30	78-123	30	80-120	30
1,1,1,2-Tetrachloroethane	630-20-6	APEX		0.200	0.400	µg/L	-	30	78-124	30	80-120	30
1,1,2,2-Tetrachloroethane	79-34-5	APEX		0.250	0.500	µg/L	-	30	71-121	30	80-120	30
Tetrachloroethene (PCE)	127-18-4	APEX		0.200	0.400	µg/L	-	30	74-129	30	80-120	30
Toluene	108-88-3	APEX		0.500	1.00	µg/L	-	30	80-121	30	80-120	30
1,2,3-Trichlorobenzene	87-61-6	APEX		1.00	2.00	µg/L	-	30	69-129	30	80-120	30
1,2,4-Trichlorobenzene	120-82-1	APEX		1.00	2.00	µg/L	-	30	69-130	30	80-120	30
1,1,1-Trichloroethane	71-55-6	APEX		0.200	0.400	µg/L	-	30	74-131	30	80-120	30
1,1,2-Trichloroethane	79-00-5	APEX		0.250	0.500	µg/L	-	30	80-120	30	80-120	30
Trichloroethene (TCE)	79-01-6	APEX		0.200	0.400	µg/L	-	30	79-123	30	80-120	30
Trichlorofluoromethane	75-69-4	APEX		1.00	2.00	µg/L	-	30	65-141	30	80-120	30
1,2,3-Trichloropropane	96-18-4	APEX		0.500	1.00	µg/L	-	30	73-122	30	80-120	30
1,2,4-Trimethylbenzene	95-63-6	APEX		0.500	1.00	µg/L	-	30	76-124	30	80-120	30
1,3,5-Trimethylbenzene	108-67-8	APEX		0.500	1.00	µg/L	-	30	75-124	30	80-120	30
Vinyl chloride	75-01-4	APEX		0.200	0.400	µg/L	-	30	58-137	30	80-120	30
m,p-Xylene	179601-23-1	APEX		0.500	1.00	µg/L	-	30	80-121	30	80-120	30
o-Xylene	95-47-6	APEX		0.250	0.500	µg/L	-	30	78-122	30	80-120	30
Xylenes, total	1330-20-7	APEX		0.750	1.50	µg/L	-	30	79-121	30	80-120	30
1,4-Difluorobenzene (Surr)	540-36-3	APEX				Surrogate	80-120	-	-	-	-	-
Toluene-d8 (Surr)	2037-26-5	APEX				Surrogate	80-120	-	-	-	-	-
4-Bromofluorobenzene (Surr)	460-00-4	APEX				Surrogate	80-120	-	-	-	-	-
SVOCs/PAHs - Water Samples												
Acenaphthene	83-32-9	APEX		0.0100	0.0200	µg/L	-	30	47-122	30	47-122	30
Acenaphthylene	208-96-8	APEX		0.0100	0.0200	µg/L	-	30	41-130	30	41-130	30
Anthracene	120-12-7	APEX		0.0100	0.0200	µg/L	-	30	57-123	30	57-123	30
Benz(a)anthracene	56-55-3	APEX		0.0100	0.0200	µg/L	-	30	58-125	30	58-125	30
Benzo(a)pyrene	50-32-8	APEX		0.0150	0.0300	µg/L	-	30	54-128	30	54-128	30
Benzo(b)fluoranthene	205-99-2	APEX		0.0150	0.0300	µg/L	-	30	53-131	30	53-131	30
Benzo(k)fluoranthene	207-08-9	APEX		0.0150	0.0300	µg/L	-	30	57-129	30	57-129	30
Benzo(g,h,i)perylene	191-24-2	APEX		0.0100	0.0200	µg/L	-	30	50-134	30	50-134	30
Chrysene	218-01-9	APEX		0.0100	0.0200	µg/L	-	30	59-123	30	59-123	30
Dibenz(a,h)anthracene	53-70-3	APEX		0.0100	0.0200	µg/L	-	30	51-134	30	51-134	30
Fluoranthene	206-44-0	APEX		0.0100	0.0200	µg/L	-	30	57-128	30	57-128	30
Fluorene	86-73-7	APEX		0.0100	0.0200	µg/L	-	30	52-124	30	52-124	30
Indeno(1,2,3-cd)pyrene	193-39-5	APEX		0.0100	0.0200	µg/L	-	30	52-134	30	52-134	30
1-Methylnaphthalene	90-12-0	APEX		0.0200	0.0400	µg/L	-	30	41-120	30	41-120	30
2-Methylnaphthalene	91-57-6	APEX		0.0200	0.0400	µg/L	-	30	40-121	30	40-121	30
Naphthalene	91-20-3	APEX		0.0200	0.0400	µg/L	-	30	40-121	30	40-121	30
Phenanthrene	85-01-8	APEX		0.0100	0.0200	µg/L	-	30	59-120	30	59-120	30
Pyrene	129-00-0	APEX		0.0100	0.0200	µg/L	-	30	57-126	30	57-126	30
Carbazole	86-74-8	APEX		0.0150	0.0300	µg/L	-	30	60-122	30	60-122	30
Dibenzofuran	132-64-9	APEX		0.0100	0.0200	µg/L	-	30	53-120	30	53-120	30
2-Chlorophenol	95-57-8	APEX		0.0500	0.100	µg/L	-	30	38-120	30	38-120	30
4-Chloro-3-methylphenol	59-50-7	APEX		0.100	0.200	µg/L	-	30	52-120	30	52-120	30
2,4-Dichlorophenol	120-83-2	APEX		0.0500	0.100	µg/L	-	30	47-121	30	47-121	30
2,4-Dimethylphenol	105-67-9	APEX		0.0500	0.100	µg/L	-	30	31-124	30	31-124	30
2,4-Dinitrophenol	51-28-5	APEX		0.250	0.500	µg/L	-	30	23-143	30	23-143	30
4,6-Dinitro-2-methylphenol	534-52-1	APEX		0.250	0.500	µg/L	-	30	44-137	30	44-137	30
2-Methylphenol	95-48-7	APEX		0.0250	0.0500	µg/L	-	30	30-120	30	30-120	30
3+4-Methylphenol(s)	-	APEX		0.0250	0.0500	µg/L	-	30	29-120	30	29-120	30
2-Nitrophenol	88-75-5	APEX		0.100	0.200	µg/L	-	30	47-123	30	47-123	30
4-Nitrophenol	100-02-7	APEX		0.100	0.200	µg/L	-	30	10-120	30	10-120	30
Pentachlorophenol (PCP)	87-86-5	APEX		0.100	0.200	µg/L	-	30	35-138	30	35-138	30
Phenol	108-95-2	APEX		0.200	0.400	µg/L	-	30	10-120	30	10-120	30
2,3,4,6-Tetrachlorophenol	58-90-2	APEX		0.0500	0.100	µg/L	-	30	50-128	30	50-128	30
2,3,5,6-Tetrachlorophenol	935-95-5	APEX		0.0500	0.100	µg/L	-	30	50-121	30	50-121	30
2,4,5-Trichlorophenol	95-95-4	APEX		0.0500	0.100	µg/L	-	30	53-123	30	53-123	30
Nitrobenzene	98-95-3	APEX		0.100	0.200	µg/L	-	30	45-121	30	45-121	30
2,4,6-Trichlorophenol	88-06-2	APEX		0.0500	0.100	µg/L	-	30	50-125	30	50-125	30
Bis(2-ethylhexyl)phthalate	117-81-7	APEX		0.200	0.400	µg/L	-	30	55-135	30	55-135	30
Butyl benzyl phthalate	85-68-7	APEX		0.200	0.400	µg/L	-	30	53-134	30	53-134	30
Diethylphthalate	84-66-2	APEX		0.200	0.400	µg/L	-	30	56-125	30	56-125	30
Dimethylphthalate	131-11-3	APEX		0.200	0.400	µg/L	-	30	45-127	30	45-127	30

Table 5
Analytical Quantitation Limits - Surface Water and Groundwater Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
Di-n-butylphthalate	84-74-2	APEX	EPA 8270E	0.200	0.400	µg/L	-	30	59-127	30	59-127	30
Di-n-octyl phthalate	117-84-0	APEX		0.200	0.400	µg/L	-	30	51-140	30	51-140	30
N-Nitrosodimethylamine	62-75-9	APEX		0.0250	0.0500	µg/L	-	30	10-120	30	10-120	30
N-Nitroso-di-n-propylamine	621-64-7	APEX		0.0250	0.0500	µg/L	-	30	49-120	30	49-120	30
N-Nitrosodiphenylamine	86-30-6	APEX		0.0250	0.0500	µg/L	-	30	51-123	30	51-123	30
Bis(2-Chloroethoxy) methane	111-91-1	APEX		0.0250	0.0500	µg/L	-	30	48-120	30	48-120	30
Bis(2-Chloroethyl) ether	111-44-4	APEX		0.0250	0.0500	µg/L	-	30	43-120	30	43-120	30
2,2'-Oxybis(1-Chloropropane)	108-60-1	APEX		0.0250	0.0500	µg/L	-	30	37-130	30	37-130	30
Hexachlorobenzene	118-74-1	APEX		0.0100	0.0200	µg/L	-	30	53-125	30	53-125	30
Hexachlorobutadiene	87-68-3	APEX		0.0250	0.0500	µg/L	-	30	22-124	30	22-124	30
Hexachlorocyclopentadiene	77-47-4	APEX		0.0500	0.100	µg/L	-	30	10-127	30	10-127	30
Hexachloroethane	67-72-1	APEX		0.0250	0.0500	µg/L	-	30	21-120	30	21-120	30
2-Chloronaphthalene	91-58-7	APEX		0.0100	0.0200	µg/L	-	30	40-120	30	40-120	30
1,2,4-Trichlorobenzene	120-82-1	APEX		0.0250	0.0500	µg/L	-	30	29-120	30	29-120	30
4-Bromophenyl phenyl ether	101-55-3	APEX		0.0250	0.0500	µg/L	-	30	55-124	30	55-124	30
4-Chlorophenyl phenyl ether	7005-72-3	APEX		0.0250	0.0500	µg/L	-	30	53-121	30	53-121	30
Aniline	62-53-3	APEX		0.0500	0.100	µg/L	-	30	10-120	30	10-120	30
4-Chloroaniline	106-47-8	APEX		0.0250	0.0500	µg/L	-	30	33-120	30	33-120	30
2-Nitroaniline	88-74-4	APEX		0.200	0.400	µg/L	-	30	55-127	30	55-127	30
3-Nitroaniline	99-09-2	APEX		0.200	0.400	µg/L	-	30	41-128	30	41-128	30
4-Nitroaniline	100-01-6	APEX		0.200	0.400	µg/L	-	30	54-128	30	54-128	30
2,4-Dinitrotoluene	121-14-2	APEX		0.100	0.200	µg/L	-	30	57-128	30	57-128	30
2,6-Dinitrotoluene	606-20-2	APEX		0.100	0.200	µg/L	-	30	57-124	30	57-124	30
Benzoic acid	65-85-0	APEX		1.25	2.50	µg/L	-	30	10-120	30	10-120	30
Benzyl alcohol	100-51-6	APEX		0.100	0.200	µg/L	-	30	31-120	30	31-120	30
Isophorone	78-59-1	APEX		0.0250	0.0500	µg/L	-	30	42-124	30	42-124	30
Azobenzene (1,2-DPH)	103-33-3	APEX		0.0250	0.0500	µg/L	-	30	61-120	30	61-120	30
Benzidine	92-87-5	APEX		0.500	1.00	µg/L	-	30	10-127	30	10-127	30
Bis(2-Ethylhexyl) adipate	103-23-1	APEX		0.250	0.500	µg/L	-	30	57-136	30	57-136	30
3,3'-Dichlorobenzidine	91-94-1	APEX		0.500	1.00	µg/L	-	30	27-129	30	27-129	30
1,2-Dinitrobenzene	528-29-0	APEX		0.250	0.500	µg/L	-	30	59-120	30	59-120	30
1,3-Dinitrobenzene	99-65-0	APEX		0.250	0.500	µg/L	-	30	49-128	30	49-128	30
1,4-Dinitrobenzene	100-25-4	APEX		0.250	0.500	µg/L	-	30	72-130	30	72-130	30
Pyridine	110-86-1	APEX		0.100	0.200	µg/L	-	30	10-120	30	10-120	30
Nitrobenzene-d5 (Surr)	4165-60-0	APEX		-	-	Surrogate	44-120	-	-	-	-	-
2-Fluorobiphenyl (Surr)	321-60-8	APEX		-	-	Surrogate	44-120	-	-	-	-	-
Phenol-d6 (Surr)	13127-88-3	APEX		-	-	Surrogate	10-133	-	-	-	-	-
p-Terphenyl-d14 (Surr)	1718-51-0	APEX		-	-	Surrogate	50-134	-	-	-	-	-
2-Fluorophenol (Surr)	367-12-4	APEX		-	-	Surrogate	19-120	-	-	-	-	-
2,4,6-Tribromophenol (Surr)	118-79-6	APEX		-	-	Surrogate	43-140	-	-	-	-	-
Total PAHs	--	APEX		-	-	µg/L	-	-	-	-	-	-
cPAHs (BaP eq)	--	APEX		-	-	µg/L	-	-	-	-	-	-
PCBs - Water Samples												
Aroclor 1016	12674-11-2	APEX	EPA 8082A	0.0500	0.100	µg/L	-	30	46-129	30	46-129	30
Aroclor 1221	11104-28-2	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1232	11141-16-5	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1242	53469-21-9	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1248	12672-29-6	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1254	11097-69-1	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1260	11096-82-5	APEX		0.0500	0.100	µg/L	-	30	45-134	30	45-134	30
Aroclor 1262	37324-23-5	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Aroclor 1268	11100-14-4	APEX		0.0500	0.100	µg/L	-	30	-	-	-	30
Total PCBs	-	APEX		-	-	µg/L	-	-	-	-	-	-
Decachlorobiphenyl (Surr)	2051-24-3	APEX		-	-	Surrogate	40-135	-	-	-	-	-
PBDEs												
BDE-1	7025-06-1	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-2	6876-00-2	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-3	101-55-3	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-10	51930-04-2	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-7	171977-44-9	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-8/11	PDBE-8/11	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-12	189084-59-1	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-13	83694-71-7	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-15	2050-47-7	Vista		-	50	pg/L	-	-	-	-	-	-

Table 5
Analytical Quantitation Limits - Surface Water and Groundwater Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
BDE-30	155999-95-4	Vista	EPA 1614	-	50	pg/L	-	-	-	-	-	-
BDE-32	189084-60-4	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-17	147217-75-2	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-25	147217-77-4	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-28/33	PBDE-28/33	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-35/21	PBDE-35/21	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-37	147217-81-0	Vista		-	50	pg/L	-	-	-	-	-	-
BDE-75/51	PBDE-75/51	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-49	243982-82-3	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-71	189084-62-6	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-47	5436-43-1	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-79	446254-48-4	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-66	189084-61-5	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-77	93703-48-1	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-100	189084-64-8	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-119/120	PBDE-119/120	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-99	60348-60-9	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-116	189084-65-9	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-118	446254-80-4	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-85	182346-21-0	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-126	366791-32-4	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-105	373594-78-6	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-155	35854-94-5	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-154/128	PBDE-154/128	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-153	68631-49-2	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-139	446254-96-2	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-140	243982-83-4	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-138	182677-30-1	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-166	PBDE-166	Vista		-	100	pg/L	-	-	-	-	-	-
BDE-156/169/148	PBDE-156/169/148	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-184	117948-63-7	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-183/176	PBDE-183/176	Vista		-	400	pg/L	-	-	-	-	-	-
BDE-175	446255-22-7	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-191	446255-30-7	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-180	446255-26-1	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-181/177	PBDE-181/177	Vista		-	400	pg/L	-	-	-	-	-	-
BDE-190/171	PBDE-190/171	Vista		-	400	pg/L	-	-	-	-	-	-
BDE-201	PBDE-201	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-197	PBDE-197	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-204	PBDE-204	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-203/200	PBDE-203/200	Vista		-	400	pg/L	-	-	-	-	-	-
BDE-205	446255-56-7	Vista		-	200	pg/L	-	-	-	-	-	-
BDE-208	437701-78-5	Vista		-	500	pg/L	-	-	-	-	-	-
BDE-207	437701-79-6	Vista		-	500	pg/L	-	-	-	-	-	-
BDE-206	63387-28-0	Vista		-	500	pg/L	-	-	-	-	-	-
BDE-209	1163-19-5	Vista		-	500	pg/L	-	-	-	-	-	-
Hydrocarbons - Water Samples												
C5-C6 Aliphatics	-	ARI	NWVPH	25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C6-C8 Aliphatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C8-C10 Aliphatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C10-C12 Aliphatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C8-C10 Aromatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C10-C12 Aromatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
C12-C13 Aromatics	-	ARI		25.0	50.0	µg/L	-	-	70-130	30	70-130	30
Methyl tert-butyl ether (MTBE)	1634-04-4	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
Benzene	71-43-2	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
Toluene	108-88-3	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
Ethylbenzene	100-41-4	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
m,p-Xylene	-	ARI		5.00	10.0	µg/L	-	-	70-130	30	70-130	30
o-Xylene	95-47-6	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
1,2,3-Trimethylbenzene	526-73-8	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
Naphthalene	91-20-3	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
1-Methylnaphthalene	90-12-0	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
n-Pentane	109-66-0	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30

Table 5
Analytical Quantitation Limits - Surface Water and Groundwater Samples

Parameter	CAS Number	Laboratory	Method	Laboratory MDLs[1]	Laboratory RLs/QLs/MRLs[1]	Units	Surrogate Percent Recovery (%)	Duplicate RPD (%)	MS/MSD		LCS/LCSD	
									Percent Recovery (%)	RPD (%)	Percent Recovery (%)	RPD (%)
n-Hexane	110-54-3	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
n-Octane	111-65-9	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
n-Decane	124-18-5	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
n-Dodecane	112-40-3	ARI		2.50	5.00	µg/L	-	-	70-130	30	70-130	30
2,5-Dibromotoluene (Surr)	615-59-8	ARI		-	-	Surrogate	60-140	-	-	-	-	-
C8-C10 Aliphatics	-	ARI	NWEPH	5.63	40.0	µg/L	-	30	12-120	30	12-120	30
C10-C12 Aliphatics	-	ARI		3.86	40.0	µg/L	-	30	15-120	30	15-120	30
C12-C16 Aliphatics	-	ARI		3.48	40.0	µg/L	-	30	39-120	30	39-120	30
C16-C21 Aliphatics	-	ARI		6.33	40.0	µg/L	-	30	56-120	30	56-120	30
C21-C34 Aliphatics	-	ARI		5.02	40.0	µg/L	-	30	10-120	30	10-120	30
1-Chloro-octadecane (Surr)	3386-33-2	ARI		-	-	Surrogate	36-120	-	-	-	-	-
C8-C10 Aromatics	-	ARI		7.04	40.0	µg/L	-	-	-	-	-	-
C10-C12 Aromatics	-	ARI		2.12	40.0	µg/L	-	30	29-120	30	29-120	30
C12-C16 Aromatics	-	ARI		2.55	40.0	µg/L	-	30	39-120	30	39-120	30
C16-C21 Aromatics	-	ARI		8.90	40.0	µg/L	-	30	54-120	30	54-120	30
C21-C34 Aromatics	-	ARI		14.6	40.0	µg/L	-	30	29-120	30	29-120	30
o-Terphenyl (Surr)	92-94-4	ARI		-	-	Surrogate	41-120	-	-	-	-	-

Notes

[1] MDLs and RLs/QLs/MRLs were provided by the laboratory. These are presented for informational purposes only. Data review/validation will be based on the most current precision and accuracy limits in effect at the time of analysis. Detection and reporting limits may change based on actual samples.

Modifications may be made to laboratory analytical methods, as necessary and technically feasible, to improve MRLs.

Abbreviations and Acronyms

% = percent
APEX = Apex Laboratories, LLC
ARI = Analytical Resources, Incorporated
ASTM = ASTM International
BaP eq = benzo(a)pyrene equivalents
CAS = Chemical Abstracts Service
cPAHs = carcinogenic polycyclic aromatic hydrocarbons
EPA = U.S. Environmental Protection Agency
EPH = extractable petroleum hydrocarbons
ICP-MS = inductively coupled mass spectrometry
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
MDL = method detection limit
MRL = method reporting limit
MS = matrix spike
MSD = matrix spike duplicate
PAHs = polycyclic aromatic hydrocarbons
PBDEs = polybrominated diphenyl ethers
PCBs = polychlorinated biphenyls
QL = quantitation limit
RLs = reporting limits
RPD = relative percent difference
surr = surrogate compound
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds
VPH = volatile petroleum hydrocarbons
Weck = Weck Laboratories, Inc.
wt = weight
µg/L = micrograms per liter

Table 6

Soil/Wetland Sediment Sample Containers, Preservation, and Holding Times Requirements

Parameter	Laboratory Test Method	Container Type	Preservation	Hold Time (days)
Metals	EPA 6020A	8 oz Glass Jar	0 - 6 °C	180
Chromium (VI)	EPA 7196A	4 oz Glass Jar	0 - 6 °C	30
Mercury	EPA 6020A	8 oz Glass Jar	0 - 6 °C	28
VOCs	EPA 8260D	40 mL VOA - 5035 (Methanol)	Methanol, 0 - 6 °C	2
SVOCs / PAHs	EPA 8270E	8 oz Glass Jar	0 - 6 °C	14
PCB Aroclors	EPA 8082A	8 oz Glass Jar	0 - 6 °C	365
VPH	NWVPH	40 mL VOA Amber - Methanol	Methanol, 0 - 6 °C	14
EPH	NWEPH	8 oz Glass Jar	0 - 6 °C	14
Total Organic Carbon	SM 5310B MOD[1]	4 oz Glass Jar	0 - 6 °C	28
Grain Size	ASTM D422 MOD[2]	8 oz Glass Jar	0 - 6 °C	180

Notes

[1] Modification is to use PSEP 1997 specified sample preparation (i.e., sample drying, homogenization, and acidification to remove inorganic carbon) for high-temperature combustion followed by nondispersive infrared detection.

[2] The modifications are that the break between fines (silts and clay) and very fine sand is 63 µm (ASTM no. 230 sieve), and the break between very coarse sand and gravels (and coarser material) is 2 mm (ASTM no. 10 sieve). The ASTM D422mod method covers both coarse and finer particle sizes.

Abbreviations and Acronyms

°C = degrees Celsius
ASTM = ASTM International
EPA = U.S. Environmental Protection Agency
EPH = extractable petroleum hydrocarbons
mL = milliliters
mm = millimeters
MOD = modification
oz = ounces
PAHs = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyl
SVOCs = semivolatile organic compounds
VOA = volatile organic analysis
VOCs = volatile organic compounds
VPH = volatile petroleum hydrocarbons
µm = micrometers
TPH = total petroleum hydrocarbons

Table 7

Surface Water and Groundwater Sample Containers, Preservation, and Holding Times Requirements

Parameter	Laboratory Test Method	Container Type	Preservation	Hold Time (days)
Water Samples				
Metals	EPA 6020A	250 mL Poly - HNO_3	HNO_3 to pH<2	180
Chromium (VI)	EPA 218.6	60 mL Poly - 218.6/7	$(NH_4)_2SO_4/NH_4OH$ to pH>8, 0 - 6 °C	14
Mercury	EPA 6020A	250 mL Poly - HNO_3	HNO_3 to pH<2, 0 - 6 °C	28
VOCs	EPA 8260D	40 mL VOA - HCL	HCl to pH<2, 0-6 °C	14
SVOCs/PAHs	EPA 8270E	1 L Amber Glass - Not Preserved	0 - 6 °C	7
PCB Aroclors	EPA 8082A	1 L Amber Glass - Non Preserved	0 - 6 °C	365
PBDEs	EPA 1614	2 x 1 L Amber Glass - Not Preserved	0 - 6 °C	365
VPH	NWVPH	40 mL VOA - HCl	HCl to pH<2, 0-6 °C	14
EPH	NWEPH	500 mL Amber Glass	0-6 °C	7

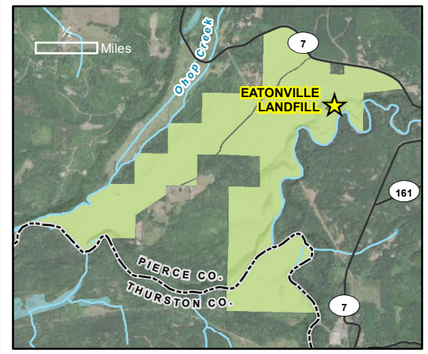
Abbreviations and Acronyms

°C = degrees Celsius
ASTM = ASTM International
EPA = U.S. Environmental Protection Agency
EPH = extractable petroleum hydrocarbons
HCl = hydrochloric acid
HNO_3 = nitric acid
L = liter
mL = milliliters
SVOCs = semivolatile organic compounds
PAHs = polycyclic aromatic hydrocarbons
PBDEs = polybrominated diphenyl ethers
PCB = polychlorinated biphenyl
pH = potential hydrogen
VOA = volatile organic analysis
VOCs = volatile organic compounds
VPH = volatile petroleum hydrocarbons
TPH = total petroleum hydrocarbons

FIGURES

FIGURE 1
Project Area
Eatonville, WA

LEGEND
- Former Eatonville Landfill
- Nisqually State Park
- County Boundary
- Road
- Perennial Watercourse
- Intermittent Watercourse
- Waterbody



N

0 300 600
Feet

Date: July 8, 2021
Data Sources: BLM, ESRI, ODOT, USGS, Department of Ecology

GSI Water Solutions, Inc.

Document Path: Y:\0171_Weyerhaeuser\Source_Figures\067_Former_Eatonville_Landfill\QAPP\Figure1_Project_Area.mxd, WKimmon

ATTACHMENTS

ATTACHMENT A

Corrective Action Record Form

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CORRECTIVE ACTION RECORD

Page ____ of ____ Audit Report No.: _____ Date: _____

Report Originator: _____ Person Responsible for Response: _____

DESCRIPTION OF PROBLEM:

Date and Time Problem Recognized: _____ By: _____

Date of Actual Occurrence: _____ By: _____

Analyte: _____ Analytical Method: _____

Cause of Problem:

CORRECTIVE ACTION PLANNED:

Person Responsible for Corrective Action: _____ Date of Corrective Action: _____

Corrective Action Plan Approval: _____ Date: _____

DESCRIPTION OF FOLLOW-UP ACTIVITIES:

Person Responsible for Follow-up Activities: _____ Date of Follow-up Activity: _____

Final Corrective Action Approval: _____ Date: _____

Attachment A. Corrective Action Record Form

ATTACHMENT B

Example Chain of Custody Form

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INSERT LAB

INSERT LAB ADDRESS

CHAIN OF CUSTODY

Lab # _____ COC __1__of__1__

Company: GSI Water Solutions	Project Mgr: Josh Bale	Project Name: Eatonville Landfill	Project #:
Address: 55 SW Yamhill Street, Suite 300, Portland OR 97204	Phone: 971-200-8502	Email: jbale@gsiws.com	PO #
Sampled by:			

Site Location: OR (WA) CA AK ID ____ SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn by EPA 6020A	VOCs by EPA 8260D	SVOCs by EPA 8270E	PAHs by EPA 8270E	PCBs by EPA 8082A	VPH by NWTPH-VPH	EPH by NWTPH-EPH	Grainsize by ASTM D422 MOD	Moisture content by ASTM D2216	In situ dry density by ASTM D7263	Fines Content by ASTM D1140	Atterberg Limits by ASTM D4318	Triaxial Compression by ASTM D4767	1D Consolidation by ASTM D2435	Cyclic Simple Direct Shear by ASTM D2974	Archive							
ANALYSIS REQUEST																											

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle)

1 Day **2 Day** **3 Day**

4 DAY **5 DAY** **Other:** _____

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:		**RECEIVED BY:**		**RELINQUISHED BY:**		**RECEIVED BY:**	
Signature:	Date:	Signature:	Date:	Signature:	Date:	Signature:	Date:
Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:	Printed Name:	Time:
Company:		Company:		Company:		Company:	

APEX LABS

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # _____ COC __1__of__1__

Company:	Project Mgr:	Project Name:	Project #:
Address:	Phone:	Email:	PO #
Sampled by:			

Site Location: OR WA CA AK ID ____ SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST																				

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle) **1 Day** **2 Day** **3 Day** **4 DAY** **5 DAY** **Other: _____**

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	**RECEIVED BY:**	**RELINQUISHED BY:**	**RECEIVED BY:**
Signature: Date:	Signature: Date:	Signature: Date:	Signature: Date:
Printed Name: Time:	Printed Name: Time:	Printed Name: Time:	Printed Name: Time:
Company:	Company:	Company:	Company:

ATTACHMENT C

Laboratory Certifications

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The State of Washington Department of Ecology

Apex Laboratories, LLC
Tigard, OR

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective November 1, 2020 and shall expire October 31, 2021.

Witnessed under my hand on October 30, 2020

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C903

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

SCOPE OF ACCREDITATION

Apex Laboratories, LLC

Tigard, OR

is accredited for the analytes listed below using the methods indicated. Full accreditation is granted unless stated otherwise in a note. EPA is the U.S. Environmental Protection Agency. SM is "Standard Methods for the Examination of Water and Wastewater." SM refers to EPA approved method versions. ASTM is the American Society for Testing and Materials. USGS is the U.S. Geological Survey. AOAC is the Association of Official Analytical Chemists. Other references are described in notes.

Matrix/Analyte	Method	Notes
Drinking Water		
Copper	EPA 200.8_5.4_1994	1
Lead	EPA 200.8_5.4_1994	1
Non-Potable Water		
Cyanide, Free	ASTM D4282-02	1
Cyanide, Available	ASTM D6888-09	1
Cyanide, Free	ASTM D7237-10	1
Cyanide, Total	ASTM D7511-12	1
Silica Gel Treated-Hexane Extractable Material	EPA 1664A (SGT-HEM)	1
n-Hexane Extractable Material (O&G)	EPA 1664A_1_1999	1
Silica Gel Treated-Hexane Extractable Material	EPA 1664B (SGT-HEM)	1
n-Hexane Extractable Material (O&G)	EPA 1664B -10 (HEM)	1
Turbidity	EPA 180.1_2_1993	1,6
Bromide	EPA 300.0_2.1_1993	1
Chloride	EPA 300.0_2.1_1993	1
Fluoride	EPA 300.0_2.1_1993	1
Nitrate + Nitrite	EPA 300.0_2.1_1993	1
Nitrate as N	EPA 300.0_2.1_1993	1
Nitrite as N	EPA 300.0_2.1_1993	1
Sulfate	EPA 300.0_2.1_1993	1
Cyanide, Total	EPA 335.4_1_1993	1
Nitrogen, Total Kjeldahl	EPA 351.2_2_1993	1
Nitrate + Nitrite	EPA 353.2_2_1993	1
Nitrate as N	EPA 353.2_2_1993	1
Nitrite as N	EPA 353.2_2_1993	1
Chemical Oxygen Demand (COD)	EPA 410.4_2_1993	1
Turbidity	SM 2130 B-2011	1,6

Matrix/Analyte	Method	Notes
Non-Potable Water		
Alkalinity	SM 2320 B-2011	1
Hardness (calc.)	SM 2340 B-2011	1
Specific Conductance	SM 2510 B-2011	1
Solids, Total	SM 2540 B-2011	1
Solids, Total Dissolved	SM 2540 C-2011	1
Solids, Total Suspended	SM 2540 D-2011	1
Solids, Total, Fixed and Volatile	SM 2540 E-2011	1,7
Solids, Settleable	SM 2540 F-2011	1
Chromium, Hexavalent	SM 3500-Cr B-2011	1
Chlorine (Residual), Total	SM 4500-Cl G-2011	1,2,3
Cyanides, Amenable to Chlorination	SM 4500-CN^- G-2011	1
Fluoride	SM 4500-F^- C-2011	1
pH	SM 4500-H+ B-2011	1
Ammonia	SM 4500-NH3 G-2011	1
Nitrogen, Total Kjeldahl	SM 4500-Norg D-2011	1
Organic Nitrogen	SM 4500-Norg D-2011	1
Dissolved Oxygen	SM 4500-O G-2011	1
Orthophosphate	SM 4500-P E-2011	1
Phosphorus, Total	SM 4500-P E-2011	1
Biochemical Oxygen Demand (BOD)	SM 5210 B-2011	1,3
Carbonaceous BOD (CBOD)	SM 5210 B-2011	1,3
Chemical Oxygen Demand (COD)	SM 5220 D-2011	1
Dissolved Organic Carbon	SM 5310 C-2011	1
Total Organic Carbon	SM 5310 C-2011	1
Mercury	EPA 1631 E-02	1
Aluminum	EPA 200.8_5.4_1994	1
Antimony	EPA 200.8_5.4_1994	1
Arsenic	EPA 200.8_5.4_1994	1
Barium	EPA 200.8_5.4_1994	1
Beryllium	EPA 200.8_5.4_1994	1
Bismuth	EPA 200.8_5.4_1994	1
Boron	EPA 200.8_5.4_1994	1
Cadmium	EPA 200.8_5.4_1994	1
Calcium	EPA 200.8_5.4_1994	1
Chromium	EPA 200.8_5.4_1994	1
Cobalt	EPA 200.8_5.4_1994	1
Copper	EPA 200.8_5.4_1994	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Iron	EPA 200.8_5.4_1994	1
Lead	EPA 200.8_5.4_1994	1
Lithium	EPA 200.8_5.4_1994	1
Magnesium	EPA 200.8_5.4_1994	1
Manganese	EPA 200.8_5.4_1994	1
Mercury	EPA 200.8_5.4_1994	1
Molybdenum	EPA 200.8_5.4_1994	1
Nickel	EPA 200.8_5.4_1994	1
Phosphorus, Total	EPA 200.8_5.4_1994	1
Potassium	EPA 200.8_5.4_1994	1
Selenium	EPA 200.8_5.4_1994	1
Silicon	EPA 200.8_5.4_1994	1
Silver	EPA 200.8_5.4_1994	1
Sodium	EPA 200.8_5.4_1994	1
Strontium	EPA 200.8_5.4_1994	1
Thallium	EPA 200.8_5.4_1994	1
Tin	EPA 200.8_5.4_1994	1
Titanium	EPA 200.8_5.4_1994	1
Uranium	EPA 200.8_5.4_1994	1
Vanadium	EPA 200.8_5.4_1994	1
Zinc	EPA 200.8_5.4_1994	1
Zirconium	EPA 200.8_5.4_1994	1
Silica	SM 4500-SiO2 C-2011	1
4,4'-DDD	EPA 608.3	1
4,4'-DDE	EPA 608.3	1
4,4'-DDT	EPA 608.3	1
Aldrin	EPA 608.3	1
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608.3	1
alpha-Chlordane	EPA 608.3	1
Aroclor-1016 (PCB-1016)	EPA 608.3	1
Aroclor-1221 (PCB-1221)	EPA 608.3	1
Aroclor-1232 (PCB-1232)	EPA 608.3	1
Aroclor-1242 (PCB-1242)	EPA 608.3	1
Aroclor-1248 (PCB-1248)	EPA 608.3	1
Aroclor-1254 (PCB-1254)	EPA 608.3	1
Aroclor-1260 (PCB-1260)	EPA 608.3	1
Aroclor-1262 (PCB-1262)	EPA 608.3	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Aroclor-1268 (PCB-1268)	EPA 608.3	1
beta-BHC (beta-Hexachlorocyclohexane)	EPA 608.3	1
Chlordane (tech.)	EPA 608.3	1
delta-BHC	EPA 608.3	1
Dieldrin	EPA 608.3	1
Endosulfan I	EPA 608.3	1
Endosulfan II	EPA 608.3	1
Endosulfan sulfate	EPA 608.3	1
Endrin	EPA 608.3	1
Endrin aldehyde	EPA 608.3	1
Endrin ketone	EPA 608.3	1
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608.3	1
gamma-Chlordane	EPA 608.3	1
Heptachlor	EPA 608.3	1
Heptachlor epoxide	EPA 608.3	1
Methoxychlor	EPA 608.3	1
Toxaphene (Chlorinated camphene)	EPA 608.3	1
Diesel range organics (DRO)	WDOE NWTPH-Dx_(1997)	1
Gasoline range organics (GRO)	WDOE NWTPH-Gx_(1997)	1,6
1,1,1,2-Tetrachloroethane	EPA 624.1	1
1,1,1-Trichloroethane	EPA 624.1	1
1,1,2,2-Tetrachloroethane	EPA 624.1	1
1,1,2-Trichloroethane	EPA 624.1	1
1,1-Dichloroethane	EPA 624.1	1
1,1-Dichloroethylene	EPA 624.1	1
1,1-Dichloropropene	EPA 624.1	1
1,2,3-Trichlorobenzene	EPA 624.1	1
1,2,3-Trichloropropane	EPA 624.1	1
1,2,4-Trimethylbenzene	EPA 624.1	1
1,2-Dibromo-3-chloropropane (DBCP)	EPA 624.1	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 624.1	1
1,2-Dichlorobenzene	EPA 624.1	1
1,2-Dichloroethane (Ethylene dichloride)	EPA 624.1	1
1,2-Dichloropropane	EPA 624.1	1
1,3,5-Trimethylbenzene	EPA 624.1	1
1,3-Dichlorobenzene	EPA 624.1	1
1,3-Dichloropropane	EPA 624.1	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
1,4-Dichlorobenzene	EPA 624.1	1
2,2-Dichloropropane	EPA 624.1	1
2-Butanone (Methyl ethyl ketone, MEK)	EPA 624.1	1
2-Chloroethyl vinyl ether	EPA 624.1	1
2-Chlorotoluene	EPA 624.1	1
2-Hexanone	EPA 624.1	1
4-Chlorotoluene	EPA 624.1	1
4-Isopropyltoluene (p-Cymene)	EPA 624.1	1
4-Methyl-2-pentanone (MIBK)	EPA 624.1	1
Acetone	EPA 624.1	1
Acrolein (Propenal)	EPA 624.1	1
Acrylonitrile	EPA 624.1	1
Benzene	EPA 624.1	1
Bromobenzene	EPA 624.1	1
Bromochloromethane	EPA 624.1	1
Bromodichloromethane	EPA 624.1	1
Bromoform	EPA 624.1	1
Carbon disulfide	EPA 624.1	1
Carbon tetrachloride	EPA 624.1	1
Chlorobenzene	EPA 624.1	1
Chlorodibromomethane	EPA 624.1	1
Chloroethane (Ethyl chloride)	EPA 624.1	1
Chloroform	EPA 624.1	1
cis-1,2-Dichloroethylene	EPA 624.1	1
cis-1,3-Dichloropropene	EPA 624.1	1
Dibromomethane	EPA 624.1	1
Ethylbenzene	EPA 624.1	1
Isopropylbenzene	EPA 624.1	1
m+p-xylene	EPA 624.1	1
Methyl bromide (Bromomethane)	EPA 624.1	1
Methyl chloride (Chloromethane)	EPA 624.1	1
Methyl tert-butyl ether (MTBE)	EPA 624.1	1
Methylene chloride (Dichloromethane)	EPA 624.1	1
n-Butylbenzene	EPA 624.1	1
n-Propylbenzene	EPA 624.1	1
o-Xylene	EPA 624.1	1
sec-Butylbenzene	EPA 624.1	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Styrene	EPA 624.1	1
tert-Butylbenzene	EPA 624.1	1
Tetrachloroethylene (Perchloroethylene)	EPA 624.1	1
Toluene	EPA 624.1	1
trans-1,2-Dichloroethylene	EPA 624.1	1
trans-1,3-Dichloropropylene	EPA 624.1	1
Trichloroethene (Trichloroethylene)	EPA 624.1	1
Trichlorofluoromethane (Freon 11)	EPA 624.1	1
Vinyl acetate	EPA 624.1	1
Vinyl chloride	EPA 624.1	1
Xylene (total)	EPA 624.1	1
1,1'-Biphenyl (BZ-0)	EPA 625.1	1
1,2,4-Trichlorobenzene	EPA 625.1	1
1,2-Dinitrobenzene	EPA 625.1	1
1,3-Dinitrobenzene (1,3-DNB)	EPA 625.1	1
1,4-Dinitrobenzene	EPA 625.1	1
1-Methylnaphthalene	EPA 625.1	1
2,2'-Oxybis(1-chloropropane)	EPA 625.1	1
2,3,4,6-Tetrachlorophenol	EPA 625.1	1
2,3,5,6-Tetrachlorophenol	EPA 625.1	1
2,4,5-Trichlorophenol	EPA 625.1	1
2,4,6-Trichlorophenol	EPA 625.1	1
2,4-Dichlorophenol	EPA 625.1	1
2,4-Dimethylphenol	EPA 625.1	1
2,4-Dinitrophenol	EPA 625.1	1
2,4-Dinitrotoluene (2,4-DNT)	EPA 625.1	1
2,6-Dichlorophenol	EPA 625.1	1
2,6-Dinitrotoluene (2,6-DNT)	EPA 625.1	1
2-Chloronaphthalene	EPA 625.1	1
2-Chlorophenol	EPA 625.1	1
2-Methylnaphthalene	EPA 625.1	1
2-Methylphenol (o-Cresol)	EPA 625.1	1
2-Nitroaniline	EPA 625.1	1
2-Nitrophenol	EPA 625.1	1
3,3'-Dichlorobenzidine	EPA 625.1	1
3,4-Dichlorophenol	EPA 625.1	1
3-Nitroaniline	EPA 625.1	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
4,6-Dinitro-2-methylphenol	EPA 625.1	1
4-Bromophenyl phenyl ether (BDE-3)	EPA 625.1	1
4-Chloro-3-methylphenol	EPA 625.1	1
4-Chloroaniline	EPA 625.1	1
4-Chlorophenyl phenylether	EPA 625.1	1
4-Nitroaniline	EPA 625.1	1
4-Nitrophenol	EPA 625.1	1
Acenaphthene	EPA 625.1	1
Acenaphthylene	EPA 625.1	1
Aniline	EPA 625.1	1
Anthracene	EPA 625.1	1
Azobenzene	EPA 625.1	1
Benzidine	EPA 625.1	1
Benzo(a)anthracene	EPA 625.1	1
Benzo(a)pyrene	EPA 625.1	1
Benzo(g,h,i)perylene	EPA 625.1	1
Benzo(k)fluoranthene	EPA 625.1	1
Benzo[b]fluoranthene	EPA 625.1	1
Benzoic acid	EPA 625.1	1
Benzyl alcohol	EPA 625.1	1
bis(2-Chloroethoxy)methane	EPA 625.1	1
bis(2-Chloroethyl) ether	EPA 625.1	1
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625.1	1
Butyl benzyl phthalate	EPA 625.1	1
Carbazole	EPA 625.1	1
Chrysene	EPA 625.1	1
Coelution - 3-Chlorophenol + 4-Chlorophenol	EPA 625.1	1
Di(2-ethylhexyl)adipate	EPA 625.1	1
Dibenz(a,h) anthracene	EPA 625.1	1
Dibenzofuran	EPA 625.1	1
Diethyl phthalate	EPA 625.1	1
Dimethyl phthalate	EPA 625.1	1
Di-n-butyl phthalate	EPA 625.1	1
Di-n-octyl phthalate	EPA 625.1	1
Fluoranthene	EPA 625.1	1
Fluorene	EPA 625.1	1
Hexachlorobenzene	EPA 625.1	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Hexachlorobutadiene	EPA 625.1	1
Hexachlorocyclopentadiene	EPA 625.1	1
Hexachloroethane	EPA 625.1	1
Indeno(1,2,3-cd) pyrene	EPA 625.1	1
Isophorone	EPA 625.1	1
m+p Cresol	EPA 625.1	1
Naphthalene	EPA 625.1	1
n-Decane	EPA 625.1	1
Nitrobenzene	EPA 625.1	1
N-Nitrosodimethylamine	EPA 625.1	1
N-Nitroso-di-n-propylamine	EPA 625.1	1
N-Nitrosodiphenylamine	EPA 625.1	1
n-Octadecane	EPA 625.1	1
Pentachlorophenol	EPA 625.1	1
Perylene	EPA 625.1	1
Phenanthrene	EPA 625.1	1
Phenol	EPA 625.1	1
Pyrene	EPA 625.1	1
Pyridine	EPA 625.1	1
Fecal coliform-count	Colilert 18® QTray® (Fecal coliform in wastewater)	1
E.coli-count	SM 9223 B Colilert® 24 QTray®	1
Total coliforms-count	SM 9223 B Colilert® 24 QTray®	1
Solid and Chemical Materials		
Percent Moisture	ASTM D2216-10	1
Cyanide, Total	ASTM D7511-12	1
Nitrite as N	EPA 353.2_2_1993	1
Chromium, Hexavalent	EPA 7196A_1_1992	1
Motor Oil	EPA 8015D_4_(6/03)	1
Cyanide, Total	EPA 9012 B-02	1
Cyanides, Amenable to Chlorination	EPA 9012 B-02	1,6
pH	EPA 9045D_2002	1
Bromide	EPA 9056A_(02/07)	1
Chloride	EPA 9056A_(02/07)	1
Fluoride	EPA 9056A_(02/07)	1
Nitrate as N	EPA 9056A_(02/07)	1
Nitrite as N	EPA 9056A_(02/07)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Sulfate	EPA 9056A_(02/07)	1
Total Organic Carbon	EPA 9060A_1_2004	1
Total Organic Carbon	PSEP 1986 Combust/Grav	1
Alkalinity	SM 2320 B-2011	1,4
Specific Conductance	SM 2510 B-2011	1,4
Solids, Total, Fixed and Volatile	SM 2540 G-2011	1,5
Cyanide, Weak Acid Dissociable	SM 4500 CN^-I-2011	1
Cyanide, Total	SM 4500-CN^- E-2011	1,6
Cyanides, Amenable to Chlorination	SM 4500-CN^- G-2011	1
Fluoride	SM 4500-F^- C-2011	1
Ammonia	SM 4500-NH3 G-2011	1
Phosphorus, Total	SM 4500-P E-2011	1
Total Organic Carbon	SM 5310 B-2011	1
Mercury	EPA 1631 E-02	1
Aluminum	EPA 6020B_(7/14)	1
Antimony	EPA 6020B_(7/14)	1
Arsenic	EPA 6020B_(7/14)	1
Barium	EPA 6020B_(7/14)	1
Beryllium	EPA 6020B_(7/14)	1
Bismuth	EPA 6020B_(7/14)	1
Boron	EPA 6020B_(7/14)	1
Cadmium	EPA 6020B_(7/14)	1
Calcium	EPA 6020B_(7/14)	1
Chromium	EPA 6020B_(7/14)	1
Cobalt	EPA 6020B_(7/14)	1
Copper	EPA 6020B_(7/14)	1
Iron	EPA 6020B_(7/14)	1
Lead	EPA 6020B_(7/14)	1
Lithium	EPA 6020B_(7/14)	1
Magnesium	EPA 6020B_(7/14)	1
Manganese	EPA 6020B_(7/14)	1
Mercury	EPA 6020B_(7/14)	1
Molybdenum	EPA 6020B_(7/14)	1
Nickel	EPA 6020B_(7/14)	1
Phosphorus, Total	EPA 6020B_(7/14)	1
Potassium	EPA 6020B_(7/14)	1
Selenium	EPA 6020B_(7/14)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Silicon	EPA 6020B_(7/14)	1
Silver	EPA 6020B_(7/14)	1
Sodium	EPA 6020B_(7/14)	1
Strontium	EPA 6020B_(7/14)	1
Thallium	EPA 6020B_(7/14)	1
Tin	EPA 6020B_(7/14)	1
Titanium	EPA 6020B_(7/14)	1
Uranium	EPA 6020B_(7/14)	1
Vanadium	EPA 6020B_(7/14)	1
Zinc	EPA 6020B_(7/14)	1
Zirconium	EPA 6020B_(7/14)	1
Diesel range organics (DRO)	EPA 8015D_4_(6/03)	1
Gasoline range organics (GRO)	EPA 8015D_4_(6/03)	1
2,4'-DDD	EPA 8081B_(2/07)	1
2,4'-DDE	EPA 8081B_(2/07)	1
2,4'-DDT	EPA 8081B_(2/07)	1
4,4'-DDD	EPA 8081B_(2/07)	1
4,4'-DDE	EPA 8081B_(2/07)	1
4,4'-DDT	EPA 8081B_(2/07)	1
Aldrin	EPA 8081B_(2/07)	1
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1
alpha-Chlordane	EPA 8081B_(2/07)	1
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1
Chlordane (tech.)	EPA 8081B_(2/07)	1
cis-Nonachlor	EPA 8081B_(2/07)	1
delta-BHC	EPA 8081B_(2/07)	1
Dieldrin	EPA 8081B_(2/07)	1
Endosulfan I	EPA 8081B_(2/07)	1
Endosulfan II	EPA 8081B_(2/07)	1
Endosulfan sulfate	EPA 8081B_(2/07)	1
Endrin	EPA 8081B_(2/07)	1
Endrin aldehyde	EPA 8081B_(2/07)	1
Endrin ketone	EPA 8081B_(2/07)	1
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1
gamma-Chlordane	EPA 8081B_(2/07)	1
Heptachlor	EPA 8081B_(2/07)	1
Heptachlor epoxide	EPA 8081B_(2/07)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Hexachlorobenzene	EPA 8081B_(2/07)	1
Hexachlorobutadiene	EPA 8081B_(2/07)	1
Methoxychlor	EPA 8081B_(2/07)	1
Mirex	EPA 8081B_(2/07)	1
Oxychlordane	EPA 8081B_(2/07)	1
Toxaphene (Chlorinated camphene)	EPA 8081B_(2/07)	1
trans-Nonachlor	EPA 8081B_(2/07)	1
Aroclor-1016 (PCB-1016)	EPA 8082A_(2/07)	1
Aroclor-1221 (PCB-1221)	EPA 8082A_(2/07)	1
Aroclor-1232 (PCB-1232)	EPA 8082A_(2/07)	1
Aroclor-1242 (PCB-1242)	EPA 8082A_(2/07)	1
Aroclor-1248 (PCB-1248)	EPA 8082A_(2/07)	1
Aroclor-1254 (PCB-1254)	EPA 8082A_(2/07)	1
Aroclor-1260 (PCB-1260)	EPA 8082A_(2/07)	1
Aroclor-1262 (PCB-1262)	EPA 8082A_(2/07)	1
Aroclor-1268 (PCB-1268)	EPA 8082A_(2/07)	1
Diesel range organics (DRO)	WDOE NWTPH-Dx_(1997)	1
Motor Oil	WDOE NWTPH-Dx_(1997)	1
1,1,1,2-Tetrachloroethane	EPA 8260D_4_(6/18)	1
1,1,1-Trichloroethane	EPA 8260D_4_(6/18)	1
1,1,2,2-Tetrachloroethane	EPA 8260D_4_(6/18)	1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260D_4_(6/18)	1
1,1,2-Trichloroethane	EPA 8260D_4_(6/18)	1
1,1-Dichloroethane	EPA 8260D_4_(6/18)	1
1,1-Dichloroethylene	EPA 8260D_4_(6/18)	1
1,1-Dichloropropene	EPA 8260D_4_(6/18)	1
1,2,3-Trichlorobenzene	EPA 8260D_4_(6/18)	1
1,2,3-Trichloropropane	EPA 8260D_4_(6/18)	1
1,2,4-Trichlorobenzene	EPA 8260D_4_(6/18)	1
1,2,4-Trimethylbenzene	EPA 8260D_4_(6/18)	1
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260D_4_(6/18)	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260D_4_(6/18)	1
1,2-Dichlorobenzene	EPA 8260D_4_(6/18)	1
1,2-Dichloroethane (Ethylene dichloride)	EPA 8260D_4_(6/18)	1
1,2-Dichloropropane	EPA 8260D_4_(6/18)	1
1,3,5-Trimethylbenzene	EPA 8260D_4_(6/18)	1
1,3-Dichlorobenzene	EPA 8260D_4_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
1,3-Dichloropropane	EPA 8260D_4_(6/18)	1
1,4-Dichlorobenzene	EPA 8260D_4_(6/18)	1
2,2-Dichloropropane	EPA 8260D_4_(6/18)	1
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260D_4_(6/18)	1
2-Chloroethyl vinyl ether	EPA 8260D_4_(6/18)	1,4
2-Chlorotoluene	EPA 8260D_4_(6/18)	1
2-Hexanone	EPA 8260D_4_(6/18)	1
4-Chlorotoluene	EPA 8260D_4_(6/18)	1
4-Isopropyltoluene (p-Cymene)	EPA 8260D_4_(6/18)	1
4-Methyl-2-pentanone (MIBK)	EPA 8260D_4_(6/18)	1
Acetone	EPA 8260D_4_(6/18)	1
Acrolein (Propenal)	EPA 8260D_4_(6/18)	1,4
Acrylonitrile	EPA 8260D_4_(6/18)	1
Benzene	EPA 8260D_4_(6/18)	1
Bromobenzene	EPA 8260D_4_(6/18)	1
Bromochloromethane	EPA 8260D_4_(6/18)	1
Bromodichloromethane	EPA 8260D_4_(6/18)	1
Bromoform	EPA 8260D_4_(6/18)	1
Carbon disulfide	EPA 8260D_4_(6/18)	1
Carbon tetrachloride	EPA 8260D_4_(6/18)	1
Chlorobenzene	EPA 8260D_4_(6/18)	1
Chlorodibromomethane	EPA 8260D_4_(6/18)	1
Chloroethane (Ethyl chloride)	EPA 8260D_4_(6/18)	1
Chloroform	EPA 8260D_4_(6/18)	1
cis-1,2-Dichloroethylene	EPA 8260D_4_(6/18)	1
cis-1,3-Dichloropropene	EPA 8260D_4_(6/18)	1
Dibromomethane	EPA 8260D_4_(6/18)	1
Dichlorodifluoromethane (Freon-12)	EPA 8260D_4_(6/18)	1
Di-isopropylether (DIPE)	EPA 8260D_4_(6/18)	1
Ethanol	EPA 8260D_4_(6/18)	1
Ethylbenzene	EPA 8260D_4_(6/18)	1
Ethyl-t-butylether (ETBE)	EPA 8260D_4_(6/18)	1
Hexachlorobutadiene	EPA 8260D_4_(6/18)	1
Iodomethane (Methyl iodide)	EPA 8260D_4_(6/18)	1
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260D_4_(6/18)	1
Isopropylbenzene	EPA 8260D_4_(6/18)	1
m+p-xylene	EPA 8260D_4_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Methyl bromide (Bromomethane)	EPA 8260D_4_(6/18)	1
Methyl chloride (Chloromethane)	EPA 8260D_4_(6/18)	1
Methyl tert-butyl ether (MTBE)	EPA 8260D_4_(6/18)	1
Methylene chloride (Dichloromethane)	EPA 8260D_4_(6/18)	1
Naphthalene	EPA 8260D_4_(6/18)	1
n-Butylbenzene	EPA 8260D_4_(6/18)	1
n-Hexane	EPA 8260D_4_(6/18)	1
n-Propylbenzene	EPA 8260D_4_(6/18)	1
o-Xylene	EPA 8260D_4_(6/18)	1
sec-Butylbenzene	EPA 8260D_4_(6/18)	1
Styrene	EPA 8260D_4_(6/18)	1
tert-Amyl ethyl ether (TAEE)	EPA 8260D_4_(6/18)	1
tert-amylmethylether (TAME)	EPA 8260D_4_(6/18)	1
tert-Butyl alcohol	EPA 8260D_4_(6/18)	1
tert-Butylbenzene	EPA 8260D_4_(6/18)	1
Tetrachloroethylene (Perchloroethylene)	EPA 8260D_4_(6/18)	1
Tetrahydrofuran (THF)	EPA 8260D_4_(6/18)	1
Toluene	EPA 8260D_4_(6/18)	1
trans-1,2-Dichloroethylene	EPA 8260D_4_(6/18)	1
trans-1,3-Dichloropropylene	EPA 8260D_4_(6/18)	1
trans-1,4-Dichloro-2-butene	EPA 8260D_4_(6/18)	1
Trichloroethene (Trichloroethylene)	EPA 8260D_4_(6/18)	1
Trichlorofluoromethane (Freon 11)	EPA 8260D_4_(6/18)	1
Vinyl acetate	EPA 8260D_4_(6/18)	1,4
Vinyl chloride	EPA 8260D_4_(6/18)	1
Xylene (total)	EPA 8260D_4_(6/18)	1
1,1,2,2-Tetrachloroethane	EPA 8260D_SIM_4_(6/18)	1
1,1,2-Trichloroethane	EPA 8260D_SIM_4_(6/18)	1
1,1-Dichloroethane	EPA 8260D_SIM_4_(6/18)	1
1,1-Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1
1,2,3-Trichloropropane	EPA 8260D_SIM_4_(6/18)	1
1,2,4-Trimethylbenzene	EPA 8260D_SIM_4_(6/18)	1
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260D_SIM_4_(6/18)	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260D_SIM_4_(6/18)	1
1,2-Dichloroethane (Ethylene dichloride)	EPA 8260D_SIM_4_(6/18)	1
1,2-Dichloropropane	EPA 8260D_SIM_4_(6/18)	1,4
1,3,5-Trimethylbenzene	EPA 8260D_SIM_4_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Benzene	EPA 8260D_SIM_4_(6/18)	1
Chloroform	EPA 8260D_SIM_4_(6/18)	1
cis-1,2-Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1
cis-1,3-Dichloropropene	EPA 8260D_SIM_4_(6/18)	1
Ethylbenzene	EPA 8260D_SIM_4_(6/18)	1
m+p-xylene	EPA 8260D_SIM_4_(6/18)	1
Methyl chloride (Chloromethane)	EPA 8260D_SIM_4_(6/18)	1
Methyl tert-butyl ether (MTBE)	EPA 8260D_SIM_4_(6/18)	1
Naphthalene	EPA 8260D_SIM_4_(6/18)	1
o-Xylene	EPA 8260D_SIM_4_(6/18)	1
Tetrachloroethylene (Perchloroethylene)	EPA 8260D_SIM_4_(6/18)	1
Toluene	EPA 8260D_SIM_4_(6/18)	1
trans-1,2 Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1
trans-1,3-Dichloropropylene	EPA 8260D_SIM_4_(6/18)	1
Trichloroethene (Trichloroethylene)	EPA 8260D_SIM_4_(6/18)	1
Vinyl chloride	EPA 8260D_SIM_4_(6/18)	1
Xylene (total)	EPA 8260D_SIM_4_(6/18)	1
1,1'-Biphenyl (BZ-0)	EPA 8270E_6_(6/18)	1
1,2,4-Trichlorobenzene	EPA 8270E_6_(6/18)	1
1,2-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,2-Dinitrobenzene	EPA 8270E_6_(6/18)	1
1,3-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270E_6_(6/18)	1
1,4-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,4-Dinitrobenzene	EPA 8270E_6_(6/18)	1
1-Methylnaphthalene	EPA 8270E_6_(6/18)	1
1-Methylphenanthrene	EPA 8270E_6_(6/18)	1
2,2'-Oxybis(1-chloropropane)	EPA 8270E_6_(6/18)	1
2,3,4,6-Tetrachlorophenol	EPA 8270E_6_(6/18)	1
2,3,5,6-Tetrachlorophenol	EPA 8270E_6_(6/18)	1
2,4,5-Trichlorophenol	EPA 8270E_6_(6/18)	1
2,4,6-Trichlorophenol	EPA 8270E_6_(6/18)	1
2,4'-DDD	EPA 8270E_6_(6/18)	1
2,4'-DDE	EPA 8270E_6_(6/18)	1
2,4'-DDT	EPA 8270E_6_(6/18)	1
2,4-Dichlorophenol	EPA 8270E_6_(6/18)	1
2,4-Dimethylphenol	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
2,4-Dinitrophenol	EPA 8270E_6_(6/18)	1
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270E_6_(6/18)	1
2,6-Dichlorophenol	EPA 8270E_6_(6/18)	1,4
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270E_6_(6/18)	1
2-Chloronaphthalene	EPA 8270E_6_(6/18)	1
2-Chlorophenol	EPA 8270E_6_(6/18)	1
2-Methylnaphthalene	EPA 8270E_6_(6/18)	1
2-Methylphenol (o-Cresol)	EPA 8270E_6_(6/18)	1
2-Nitroaniline	EPA 8270E_6_(6/18)	1
2-Nitrophenol	EPA 8270E_6_(6/18)	1
3,3'-Dichlorobenzidine	EPA 8270E_6_(6/18)	1
3-Nitroaniline	EPA 8270E_6_(6/18)	1
4,4'-DDD	EPA 8270E_6_(6/18)	1
4,4'-DDE	EPA 8270E_6_(6/18)	1
4,4'-DDT	EPA 8270E_6_(6/18)	1
4,6-Dinitro-2-methylphenol	EPA 8270E_6_(6/18)	1
4-Bromophenyl phenyl ether (BDE-3)	EPA 8270E_6_(6/18)	1
4-Chloro-3-methylphenol	EPA 8270E_6_(6/18)	1
4-Chloroaniline	EPA 8270E_6_(6/18)	1
4-Chlorophenyl phenylether	EPA 8270E_6_(6/18)	1
4-Nitroaniline	EPA 8270E_6_(6/18)	1
4-Nitrophenol	EPA 8270E_6_(6/18)	1
Acenaphthene	EPA 8270E_6_(6/18)	1
Acenaphthylene	EPA 8270E_6_(6/18)	1
Aldrin	EPA 8270E_6_(6/18)	1
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8270E_6_(6/18)	1
alpha-Chlordane	EPA 8270E_6_(6/18)	1
Aniline	EPA 8270E_6_(6/18)	1
Anthracene	EPA 8270E_6_(6/18)	1
Azinphos-methyl (Guthion)	EPA 8270E_6_(6/18)	1
Azobenzene	EPA 8270E_6_(6/18)	1
Benzidine	EPA 8270E_6_(6/18)	1,4
Benzo(a)anthracene	EPA 8270E_6_(6/18)	1
Benzo(a)pyrene	EPA 8270E_6_(6/18)	1
Benzo(e)pyrene	EPA 8270E_6_(6/18)	1
Benzo(g,h,i)perylene	EPA 8270E_6_(6/18)	1
Benzo(k)fluoranthene	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Benzo[b]fluoranthene	EPA 8270E_6_(6/18)	1
Benzoic acid	EPA 8270E_6_(6/18)	1
Benzyl alcohol	EPA 8270E_6_(6/18)	1
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8270E_6_(6/18)	1
bis(2-Chloroethoxy)methane	EPA 8270E_6_(6/18)	1
bis(2-Chloroethyl) ether	EPA 8270E_6_(6/18)	1
Bolstar (Sulprofos)	EPA 8270E_6_(6/18)	1
Butyl benzyl phthalate	EPA 8270E_6_(6/18)	1
Carbazole	EPA 8270E_6_(6/18)	1
Chlorpyrifos	EPA 8270E_6_(6/18)	1
Chrysene	EPA 8270E_6_(6/18)	1
cis-Nonachlor	EPA 8270E_6_(6/18)	1
Coumaphos	EPA 8270E_6_(6/18)	1
delta-BHC	EPA 8270E_6_(6/18)	1
Demeton-o	EPA 8270E_6_(6/18)	1
Demeton-s	EPA 8270E_6_(6/18)	1
Di(2-ethylhexyl)adipate	EPA 8270E_6_(6/18)	1
Di(2-ethylhexyl)phthalate	EPA 8270E_6_(6/18)	1
Diazinon	EPA 8270E_6_(6/18)	1
Dibenz(a,h) anthracene	EPA 8270E_6_(6/18)	1
Dibenz(a,j) acridine	EPA 8270E_6_(6/18)	1
Dibenzo(a,e) pyrene	EPA 8270E_6_(6/18)	1
Dibenzo(a,h) pyrene	EPA 8270E_6_(6/18)	1
Dibenzo(a,i) pyrene	EPA 8270E_6_(6/18)	1
Dibenzofuran	EPA 8270E_6_(6/18)	1
Dibenzothiophene	EPA 8270E_6_(6/18)	1
Dichlorovos (DDVP, Dichlorvos)	EPA 8270E_6_(6/18)	1
Dieldrin	EPA 8270E_6_(6/18)	1
Diethyl phthalate	EPA 8270E_6_(6/18)	1
Dimethoate	EPA 8270E_6_(6/18)	1
Dimethyl phthalate	EPA 8270E_6_(6/18)	1
Di-n-butyl phthalate	EPA 8270E_6_(6/18)	1
Di-n-octyl phthalate	EPA 8270E_6_(6/18)	1
Disulfoton	EPA 8270E_6_(6/18)	1
Endosulfan I	EPA 8270E_6_(6/18)	1
Endosulfan II	EPA 8270E_6_(6/18)	1
Endosulfan sulfate	EPA 8270E_6_(6/18)	1

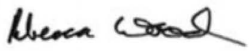
Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Endrin	EPA 8270E_6_(6/18)	1
Endrin aldehyde	EPA 8270E_6_(6/18)	1
Endrin ketone	EPA 8270E_6_(6/18)	1
EPN	EPA 8270E_6_(6/18)	1
Ethoprop	EPA 8270E_6_(6/18)	1
Fensulfothion	EPA 8270E_6_(6/18)	1
Fenthion	EPA 8270E_6_(6/18)	1
Fluoranthene	EPA 8270E_6_(6/18)	1
Fluorene	EPA 8270E_6_(6/18)	1
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8270E_6_(6/18)	1
gamma-Chlordane	EPA 8270E_6_(6/18)	1
Heptachlor	EPA 8270E_6_(6/18)	1
Heptachlor epoxide	EPA 8270E_6_(6/18)	1
Hexachlorobenzene	EPA 8270E_6_(6/18)	1
Hexachlorobutadiene	EPA 8270E_6_(6/18)	1
Hexachlorocyclopentadiene	EPA 8270E_6_(6/18)	1
Hexachloroethane	EPA 8270E_6_(6/18)	1
Indeno(1,2,3-cd) pyrene	EPA 8270E_6_(6/18)	1
Isophorone	EPA 8270E_6_(6/18)	1
m+p Cresol	EPA 8270E_6_(6/18)	1
Malathion	EPA 8270E_6_(6/18)	1
Merphos	EPA 8270E_6_(6/18)	1
Methoxychlor	EPA 8270E_6_(6/18)	1
Methyl parathion (Parathion, methyl)	EPA 8270E_6_(6/18)	1
Mevinphos	EPA 8270E_6_(6/18)	1
Mirex	EPA 8270E_6_(6/18)	1
Monocrotophos	EPA 8270E_6_(6/18)	1
Naled	EPA 8270E_6_(6/18)	1
Naphthalene	EPA 8270E_6_(6/18)	1
Nitrobenzene	EPA 8270E_6_(6/18)	1
N-Nitrosodimethylamine	EPA 8270E_6_(6/18)	1
N-Nitroso-di-n-propylamine	EPA 8270E_6_(6/18)	1
N-Nitrosodiphenylamine	EPA 8270E_6_(6/18)	1
Oxychlordane	EPA 8270E_6_(6/18)	1
Parathion, ethyl	EPA 8270E_6_(6/18)	1
Pentachlorophenol	EPA 8270E_6_(6/18)	1
Perylene	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Phenanthrene	EPA 8270E_6_(6/18)	1
Phenol	EPA 8270E_6_(6/18)	1
Phorate	EPA 8270E_6_(6/18)	1
Pyrene	EPA 8270E_6_(6/18)	1
Pyridine	EPA 8270E_6_(6/18)	1
Ronnel	EPA 8270E_6_(6/18)	1
Sulfotepp	EPA 8270E_6_(6/18)	1
Tetrachlorvinphos (Stirophos, Gardona)	EPA 8270E_6_(6/18)	1
Tetraethyl pyrophosphate (TEPP)	EPA 8270E_6_(6/18)	1
Tokuthion (Prothiophos)	EPA 8270E_6_(6/18)	1
trans-Nonachlor	EPA 8270E_6_(6/18)	1
Trichloronate	EPA 8270E_6_(6/18)	1
1-Methylnaphthalene	EPA 8270E_6_(6/18) SIM	1
2-Methylnaphthalene	EPA 8270E_6_(6/18) SIM	1
Acenaphthene	EPA 8270E_6_(6/18) SIM	1
Acenaphthylene	EPA 8270E_6_(6/18) SIM	1
Anthracene	EPA 8270E_6_(6/18) SIM	1
Benzo(a)anthracene	EPA 8270E_6_(6/18) SIM	1
Benzo(a)pyrene	EPA 8270E_6_(6/18) SIM	1
Benzo(g,h,i)perylene	EPA 8270E_6_(6/18) SIM	1
Benzo(k)fluoranthene	EPA 8270E_6_(6/18) SIM	1
Benzo[b]fluoranthene	EPA 8270E_6_(6/18) SIM	1
Carbazole	EPA 8270E_6_(6/18) SIM	1
Chrysene	EPA 8270E_6_(6/18) SIM	1
Dibenz(a,h) anthracene	EPA 8270E_6_(6/18) SIM	1
Dibenzofuran	EPA 8270E_6_(6/18) SIM	1
Fluoranthene	EPA 8270E_6_(6/18) SIM	1
Fluorene	EPA 8270E_6_(6/18) SIM	1
Indeno(1,2,3-cd) pyrene	EPA 8270E_6_(6/18) SIM	1
Naphthalene	EPA 8270E_6_(6/18) SIM	1
Phenanthrene	EPA 8270E_6_(6/18) SIM	1
Pyrene	EPA 8270E_6_(6/18) SIM	1
Gasoline range organics (GRO)	WDOE NWTPH-Gx_(1997)	1
Particle Size Distribution	ASTM D422-63 (07)	1
Ignitability	EPA 1010A - 2002	1
Paint Filter Liquids	EPA 9095 B-04	1

Matrix/Analyte	Method	Notes

Accredited Parameter Note Detail

(1)Accreditation based in part on recognition of Oregon NELAP accreditation. (2) Hach 8167.(3) Approved for compliance testing only when holding time is met.(4) Liquid only. (5) Includes: Total Fixed Soilds, Total Volatile Soilds, and Percent Moisture. (6) Provisional accreditation pending submittal of acceptable Proficiency Testing (PT) results (WAC 173-50-110). (7) Includes: Total Volatile Soilds, Total Volatile Dissolved Soilds, Total Volatile Suspended Solids, and Total Fixed Solids.



11/03/2020

Authentication Signature
Rebecca Wood, Lab Accreditation Unit Supervisor

Date

The State of Washington Department of Ecology

Eurofins Air Toxics, LLC
Folsom, CA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation.

This certificate is effective May 13, 2021 and shall expire May 12, 2022.

Witnessed under my hand on May 14, 2021.

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C935

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

SCOPE OF ACCREDITATION

Eurofins Air Toxics, LLC

Folsom, CA

is accredited for the analytes listed below using the methods indicated. Full accreditation is granted unless stated otherwise in a note. EPA is the U.S. Environmental Protection Agency. SM is "Standard Methods for the Examination of Water and Wastewater." SM refers to EPA approved method versions. ASTM is the American Society for Testing and Materials. USGS is the U.S. Geological Survey. AOAC is the Association of Official Analytical Chemists. Other references are described in notes.

Matrix/Analyte	Method	Notes
Air		
2-Methylbutane (Isopentane)	ASTM D1945	1
2-methylpropane (Isobutane)	ASTM D1945	1
Acetylene	ASTM D1945	1
Carbon dioxide	ASTM D1945	1
Carbon monoxide	ASTM D1945	1
Ethane	ASTM D1945	1
Ethene	ASTM D1945	1
Helium	ASTM D1945	1
Hydrogen	ASTM D1945	1
Methane	ASTM D1945	1
n-Butane	ASTM D1945	1
Neopentane	ASTM D1945	1
Nitrogen	ASTM D1945	1
n-Pentane	ASTM D1945	1
n-Propane	ASTM D1945	1
Oxygen	ASTM D1945	1
Carbon dioxide	ASTM D1946	1
Carbon monoxide	ASTM D1946	1
Ethane	ASTM D1946	1
Ethene	ASTM D1946	1
Helium	ASTM D1946	1
Hydrogen	ASTM D1946	1
Methane	ASTM D1946	1
Nitrogen	ASTM D1946	1
Oxygen	ASTM D1946	1
Gasoline range organics (GRO)	EPA TO-3	1

Matrix/Analyte	Method	Notes
Air		
1,3-Butadiene	EPA 325B	1,2
Benzene	EPA 325B	1,2
Ethylbenzene	EPA 325B	1,2
m+p-xylene	EPA 325B	1,2
o-Xylene	EPA 325B	1,2
Styrene	EPA 325B	1,2
Toluene	EPA 325B	1,2
2-Chloronaphthalene	EPA TO-13A (1999)	1
2-Methylnaphthalene	EPA TO-13A (1999)	1
Acenaphthene	EPA TO-13A (1999)	1
Acenaphthylene	EPA TO-13A (1999)	1
Anthracene	EPA TO-13A (1999)	1
Benzo(a)anthracene	EPA TO-13A (1999)	1
Benzo(a)pyrene	EPA TO-13A (1999)	1
Benzo(g,h,i)perylene	EPA TO-13A (1999)	1
Benzo(k)fluoranthene	EPA TO-13A (1999)	1
Benzo[b]fluoranthene	EPA TO-13A (1999)	1
Chrysene	EPA TO-13A (1999)	1
Dibenz(a,h) anthracene	EPA TO-13A (1999)	1
Fluoranthene	EPA TO-13A (1999)	1
Fluorene	EPA TO-13A (1999)	1
Indeno(1,2,3-cd) pyrene	EPA TO-13A (1999)	1
Naphthalene	EPA TO-13A (1999)	1
Phenanthrene	EPA TO-13A (1999)	1
Pyrene	EPA TO-13A (1999)	1
2-Chloronaphthalene	EPA TO-13A SIM (1999)	1
2-Methylnaphthalene	EPA TO-13A SIM (1999)	1
Acenaphthene	EPA TO-13A SIM (1999)	1
Acenaphthylene	EPA TO-13A SIM (1999)	1
Anthracene	EPA TO-13A SIM (1999)	1
Benzo(a)anthracene	EPA TO-13A SIM (1999)	1
Benzo(a)pyrene	EPA TO-13A SIM (1999)	1
Benzo(g,h,i)perylene	EPA TO-13A SIM (1999)	1
Benzo(k)fluoranthene	EPA TO-13A SIM (1999)	1
Benzo[b]fluoranthene	EPA TO-13A SIM (1999)	1
Chrysene	EPA TO-13A SIM (1999)	1
Dibenz(a,h) anthracene	EPA TO-13A SIM (1999)	1

Matrix/Analyte	Method	Notes
Air		
Fluoranthene	EPA TO-13A SIM (1999)	1
Fluorene	EPA TO-13A SIM (1999)	1
Indeno(1,2,3-cd) pyrene	EPA TO-13A SIM (1999)	1
Naphthalene	EPA TO-13A SIM (1999)	1
Phenanthrene	EPA TO-13A SIM (1999)	1
Pyrene	EPA TO-13A SIM (1999)	1
1,1,1-Trichloroethane	EPA TO-14A Rev. 2 (1999)	1,2
1,1,2,2-Tetrachloroethane	EPA TO-14A Rev. 2 (1999)	1,2
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA TO-14A Rev. 2 (1999)	1,2
1,1,2-Trichloroethane	EPA TO-14A Rev. 2 (1999)	1,2
1,1-Dichloroethane	EPA TO-14A Rev. 2 (1999)	1,2
1,1-Dichloroethylene	EPA TO-14A Rev. 2 (1999)	1,2
1,2,4-Trichlorobenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,2,4-Trimethylbenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA TO-14A Rev. 2 (1999)	1,2
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	EPA TO-14A Rev. 2 (1999)	1,2
1,2-Dichlorobenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,2-Dichloroethane (Ethylene dichloride)	EPA TO-14A Rev. 2 (1999)	1,2
1,2-Dichloropropane	EPA TO-14A Rev. 2 (1999)	1,2
1,3,5-Trimethylbenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,3-Butadiene	EPA TO-14A Rev. 2 (1999)	1,2
1,3-Dichlorobenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,4-Dichlorobenzene	EPA TO-14A Rev. 2 (1999)	1,2
1,4-Dioxane (1,4- Diethyleneoxide)	EPA TO-14A Rev. 2 (1999)	1,2
1-Propene	EPA TO-14A Rev. 2 (1999)	1,2
2-Butanone (Methyl ethyl ketone, MEK)	EPA TO-14A Rev. 2 (1999)	1,2
2-Hexanone	EPA TO-14A Rev. 2 (1999)	1,2
4-Ethyltoluene	EPA TO-14A Rev. 2 (1999)	1,2
4-Methyl-2-pentanone (MIBK)	EPA TO-14A Rev. 2 (1999)	1,2
Acetone	EPA TO-14A Rev. 2 (1999)	1,2
Benzene	EPA TO-14A Rev. 2 (1999)	1,2
Benzyl chloride	EPA TO-14A Rev. 2 (1999)	1,2
Bromodichloromethane	EPA TO-14A Rev. 2 (1999)	1,2
Bromoform	EPA TO-14A Rev. 2 (1999)	1,2
Carbon disulfide	EPA TO-14A Rev. 2 (1999)	1,2
Carbon tetrachloride	EPA TO-14A Rev. 2 (1999)	1,2
Chlorobenzene	EPA TO-14A Rev. 2 (1999)	1,2

Matrix/Analyte	Method	Notes
Air		
Chlorodibromomethane	EPA TO-14A Rev. 2 (1999)	1,2
Chloroform	EPA TO-14A Rev. 2 (1999)	1,2
cis & trans-1,2-Dichloroethene	EPA TO-14A Rev. 2 (1999)	1,2
cis-1,3-Dichloropropene	EPA TO-14A Rev. 2 (1999)	1,2
Cyclohexane	EPA TO-14A Rev. 2 (1999)	1,2
Dichlorodifluoromethane (Freon-12)	EPA TO-14A Rev. 2 (1999)	1,2
Ethanol	EPA TO-14A Rev. 2 (1999)	1,2
Ethyl chloride	EPA TO-14A Rev. 2 (1999)	1,2
Ethylbenzene	EPA TO-14A Rev. 2 (1999)	1,2
Hexachlorobutadiene	EPA TO-14A Rev. 2 (1999)	1,2
Isopropyl alcohol (2-Propanol, Isopropanol)	EPA TO-14A Rev. 2 (1999)	1,2
Isopropylbenzene	EPA TO-14A Rev. 2 (1999)	1,2
m+p-xylene	EPA TO-14A Rev. 2 (1999)	1,2
Methyl bromide (Bromomethane)	EPA TO-14A Rev. 2 (1999)	1,2
Methyl chloride (Chloromethane)	EPA TO-14A Rev. 2 (1999)	1,2
Methyl tert-butyl ether (MTBE)	EPA TO-14A Rev. 2 (1999)	1,2
Methylene chloride (Dichloromethane)	EPA TO-14A Rev. 2 (1999)	1,2
Naphthalene	EPA TO-14A Rev. 2 (1999)	1,2
n-Heptane	EPA TO-14A Rev. 2 (1999)	1,2
n-Hexane	EPA TO-14A Rev. 2 (1999)	1,2
n-Propylbenzene	EPA TO-14A Rev. 2 (1999)	1,2
o-Xylene	EPA TO-14A Rev. 2 (1999)	1,2
Styrene	EPA TO-14A Rev. 2 (1999)	1,2
Tetrachloroethylene (Perchloroethylene)	EPA TO-14A Rev. 2 (1999)	1,2
Tetrahydrofuran (THF)	EPA TO-14A Rev. 2 (1999)	1,2
Toluene	EPA TO-14A Rev. 2 (1999)	1,2
trans-1,3-Dichloropropylene	EPA TO-14A Rev. 2 (1999)	1,2
Trichloroethene (Trichloroethylene)	EPA TO-14A Rev. 2 (1999)	1,2
Trichlorofluoromethane (Freon 11)	EPA TO-14A Rev. 2 (1999)	1,2
Vinyl chloride	EPA TO-14A Rev. 2 (1999)	1,2
Xylene (total)	EPA TO-14A Rev. 2 (1999)	1,2
1,1,1-Trichloroethane	EPA TO-15 Rev. 2 (1999)	1
1,1,2,2-Tetrachloroethane	EPA TO-15 Rev. 2 (1999)	1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA TO-15 Rev. 2 (1999)	1
1,1,2-Trichloroethane	EPA TO-15 Rev. 2 (1999)	1
1,1-Dichloroethane	EPA TO-15 Rev. 2 (1999)	1
1,1-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	1

Matrix/Analyte	Method	Notes
Air		
1,2,3-Trichloropropane	EPA TO-15 Rev. 2 (1999)	1
1,2,4-Trichlorobenzene	EPA TO-15 Rev. 2 (1999)	1
1,2,4-Trimethylbenzene	EPA TO-15 Rev. 2 (1999)	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA TO-15 Rev. 2 (1999)	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	EPA TO-15 Rev. 2 (1999)	1
1,2-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	1
1,2-Dichloroethane (Ethylene dichloride)	EPA TO-15 Rev. 2 (1999)	1
1,2-Dichloropropane	EPA TO-15 Rev. 2 (1999)	1
1,3,5-Trimethylbenzene	EPA TO-15 Rev. 2 (1999)	1
1,3-Butadiene	EPA TO-15 Rev. 2 (1999)	1
1,3-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	1
1,4-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	1
1,4-Dioxane (1,4- Diethyleneoxide)	EPA TO-15 Rev. 2 (1999)	1
1-Propene	EPA TO-15 Rev. 2 (1999)	1
2,2,4-Trimethylpentane	EPA TO-15 Rev. 2 (1999)	1
2-Butanone (Methyl ethyl ketone, MEK)	EPA TO-15 Rev. 2 (1999)	1
2-Chlorotoluene	EPA TO-15 Rev. 2 (1999)	1
2-Hexanone	EPA TO-15 Rev. 2 (1999)	1
4-Ethyltoluene	EPA TO-15 Rev. 2 (1999)	1
4-Isopropyltoluene (p-Cymene)	EPA TO-15 Rev. 2 (1999)	1
4-Methyl-2-pentanone (MIBK)	EPA TO-15 Rev. 2 (1999)	1
Acetone	EPA TO-15 Rev. 2 (1999)	1
Acrolein (Propenal)	EPA TO-15 Rev. 2 (1999)	1
Allyl chloride (3-Chloropropene)	EPA TO-15 Rev. 2 (1999)	1
alpha-Methylstyrene	EPA TO-15 Rev. 2 (1999)	1
Benzene	EPA TO-15 Rev. 2 (1999)	1
Benzyl chloride	EPA TO-15 Rev. 2 (1999)	1
Bromodichloromethane	EPA TO-15 Rev. 2 (1999)	1
Bromoform	EPA TO-15 Rev. 2 (1999)	1
Carbon disulfide	EPA TO-15 Rev. 2 (1999)	1
Carbon tetrachloride	EPA TO-15 Rev. 2 (1999)	1
Chlorobenzene	EPA TO-15 Rev. 2 (1999)	1
Chlorodibromomethane	EPA TO-15 Rev. 2 (1999)	1
Chlorodifluoromethane (Freon-22)	EPA TO-15 Rev. 2 (1999)	1
Chloroform	EPA TO-15 Rev. 2 (1999)	1
cis-1,2-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	1
cis-1,3-Dichloropropene	EPA TO-15 Rev. 2 (1999)	1

Matrix/Analyte	Method	Notes
Air		
Cyclohexane	EPA TO-15 Rev. 2 (1999)	1
Dibromomethane	EPA TO-15 Rev. 2 (1999)	1
Dichlorodifluoromethane (Freon-12)	EPA TO-15 Rev. 2 (1999)	1
Diethyl ether	EPA TO-15 Rev. 2 (1999)	1
Ethanol	EPA TO-15 Rev. 2 (1999)	1
Ethyl acetate	EPA TO-15 Rev. 2 (1999)	1
Ethyl chloride	EPA TO-15 Rev. 2 (1999)	1
Ethylbenzene	EPA TO-15 Rev. 2 (1999)	1
Hexachlorobutadiene	EPA TO-15 Rev. 2 (1999)	1
Isopropyl alcohol (2-Propanol, Isopropanol)	EPA TO-15 Rev. 2 (1999)	1
Isopropylbenzene	EPA TO-15 Rev. 2 (1999)	1
m+p-xylene	EPA TO-15 Rev. 2 (1999)	1
Methyl bromide (Bromomethane)	EPA TO-15 Rev. 2 (1999)	1
Methyl chloride (Chloromethane)	EPA TO-15 Rev. 2 (1999)	1
Methyl methacrylate	EPA TO-15 Rev. 2 (1999)	1
Methyl tert-butyl ether (MTBE)	EPA TO-15 Rev. 2 (1999)	1
Methylene chloride (Dichloromethane)	EPA TO-15 Rev. 2 (1999)	1
Naphthalene	EPA TO-15 Rev. 2 (1999)	1
n-Butylbenzene	EPA TO-15 Rev. 2 (1999)	1
n-Heptane	EPA TO-15 Rev. 2 (1999)	1
n-Hexane	EPA TO-15 Rev. 2 (1999)	1
n-Propylbenzene	EPA TO-15 Rev. 2 (1999)	1
o-Xylene	EPA TO-15 Rev. 2 (1999)	1
sec-Butylbenzene	EPA TO-15 Rev. 2 (1999)	1
Styrene	EPA TO-15 Rev. 2 (1999)	1
tert-Butyl alcohol	EPA TO-15 Rev. 2 (1999)	1
tert-Butylbenzene	EPA TO-15 Rev. 2 (1999)	1
Tetrachloroethylene (Perchloroethylene)	EPA TO-15 Rev. 2 (1999)	1
Tetrahydrofuran (THF)	EPA TO-15 Rev. 2 (1999)	1
Toluene	EPA TO-15 Rev. 2 (1999)	1
trans-1,2-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	1
trans-1,3-Dichloropropylene	EPA TO-15 Rev. 2 (1999)	1
Trichloroethene (Trichloroethylene)	EPA TO-15 Rev. 2 (1999)	1
Trichlorofluoromethane (Freon 11)	EPA TO-15 Rev. 2 (1999)	1
Vinyl acetate	EPA TO-15 Rev. 2 (1999)	1
Vinyl chloride	EPA TO-15 Rev. 2 (1999)	1
Xylene (total)	EPA TO-15 Rev. 2 (1999)	1

Matrix/Analyte	Method	Notes
Air		
1,1,1-Trichloroethane	EPA TO-15 SIM Rev. 2 (1999)	1
1,1,2,2-Tetrachloroethane	EPA TO-15 SIM Rev. 2 (1999)	1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA TO-15 SIM Rev. 2 (1999)	1
1,1,2-Trichloroethane	EPA TO-15 SIM Rev. 2 (1999)	1
1,1-Dichloroethane	EPA TO-15 SIM Rev. 2 (1999)	1
1,1-Dichloroethylene	EPA TO-15 SIM Rev. 2 (1999)	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA TO-15 SIM Rev. 2 (1999)	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	EPA TO-15 SIM Rev. 2 (1999)	1
1,2-Dichloroethane (Ethylene dichloride)	EPA TO-15 SIM Rev. 2 (1999)	1
1,4-Dichlorobenzene	EPA TO-15 SIM Rev. 2 (1999)	1
Benzene	EPA TO-15 SIM Rev. 2 (1999)	1
Carbon tetrachloride	EPA TO-15 SIM Rev. 2 (1999)	1
Chloroethane (Ethyl chloride)	EPA TO-15 SIM Rev. 2 (1999)	1
Chloroform	EPA TO-15 SIM Rev. 2 (1999)	1
cis-1,2-Dichloroethylene	EPA TO-15 SIM Rev. 2 (1999)	1
Dichlorodifluoromethane (Freon-12)	EPA TO-15 SIM Rev. 2 (1999)	1
Ethylbenzene	EPA TO-15 SIM Rev. 2 (1999)	1
m+p-xylene	EPA TO-15 SIM Rev. 2 (1999)	1
Methyl chloride (Chloromethane)	EPA TO-15 SIM Rev. 2 (1999)	1
Methyl tert-butyl ether (MTBE)	EPA TO-15 SIM Rev. 2 (1999)	1
Naphthalene	EPA TO-15 SIM Rev. 2 (1999)	1
o-Xylene	EPA TO-15 SIM Rev. 2 (1999)	1
Tetrachloroethylene (Perchloroethylene)	EPA TO-15 SIM Rev. 2 (1999)	1
Toluene	EPA TO-15 SIM Rev. 2 (1999)	1
trans-1,2-Dichloroethylene	EPA TO-15 SIM Rev. 2 (1999)	1
Trichloroethene (Trichloroethylene)	EPA TO-15 SIM Rev. 2 (1999)	1
Trichlorofluoromethane (Freon 11)	EPA TO-15 SIM Rev. 2 (1999)	1
Vinyl chloride	EPA TO-15 SIM Rev. 2 (1999)	1
1,1,1-Trichloroethane	EPA TO-17 Rev. 2 (1999)	1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA TO-17 Rev. 2 (1999)	1
1,1,2-Trichloroethane	EPA TO-17 Rev. 2 (1999)	1
1,1-Dichloroethane	EPA TO-17 Rev. 2 (1999)	1
1,1-Dichloroethylene	EPA TO-17 Rev. 2 (1999)	1
1,2,4-Trichlorobenzene	EPA TO-17 Rev. 2 (1999)	1
1,2,4-Trimethylbenzene	EPA TO-17 Rev. 2 (1999)	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	EPA TO-17 Rev. 2 (1999)	1
1,2-Dichlorobenzene	EPA TO-17 Rev. 2 (1999)	1

Matrix/Analyte	Method	Notes
Air		
1,2-Dichloroethane (Ethylene dichloride)	EPA TO-17 Rev. 2 (1999)	1
1,2-Dichloropropane	EPA TO-17 Rev. 2 (1999)	1
1,3,5-Trimethylbenzene	EPA TO-17 Rev. 2 (1999)	1
1,3-Butadiene	EPA TO-17 Rev. 2 (1999)	1
1,3-Dichlorobenzene	EPA TO-17 Rev. 2 (1999)	1
1,4-Dichlorobenzene	EPA TO-17 Rev. 2 (1999)	1
1,4-Dioxane (1,4- Diethyleneoxide)	EPA TO-17 Rev. 2 (1999)	1
1-Methylnaphthalene	EPA TO-17 Rev. 2 (1999)	1
2,2,4-Trimethylpentane	EPA TO-17 Rev. 2 (1999)	1
2-Butanone (Methyl ethyl ketone, MEK)	EPA TO-17 Rev. 2 (1999)	1
2-Hexanone	EPA TO-17 Rev. 2 (1999)	1
2-Methylbutane (Isopentane)	EPA TO-17 Rev. 2 (1999)	1
2-Methylnaphthalene	EPA TO-17 Rev. 2 (1999)	1
4-Ethyltoluene	EPA TO-17 Rev. 2 (1999)	1
4-Methyl-2-pentanone (MIBK)	EPA TO-17 Rev. 2 (1999)	1
Acenaphthene	EPA TO-17 Rev. 2 (1999)	1
Acenaphthylene	EPA TO-17 Rev. 2 (1999)	1
Anthracene	EPA TO-17 Rev. 2 (1999)	1
Benzene	EPA TO-17 Rev. 2 (1999)	1
Carbon disulfide	EPA TO-17 Rev. 2 (1999)	1
Carbon tetrachloride	EPA TO-17 Rev. 2 (1999)	1
Chlorobenzene	EPA TO-17 Rev. 2 (1999)	1
Chloroethane (Ethyl chloride)	EPA TO-17 Rev. 2 (1999)	1
Chloroform	EPA TO-17 Rev. 2 (1999)	1
cis-1,2-Dichloroethylene	EPA TO-17 Rev. 2 (1999)	1
Cyclohexane	EPA TO-17 Rev. 2 (1999)	1
Ethylbenzene	EPA TO-17 Rev. 2 (1999)	1
Fluoranthene	EPA TO-17 Rev. 2 (1999)	1
Fluorene	EPA TO-17 Rev. 2 (1999)	1
Hexachlorobutadiene	EPA TO-17 Rev. 2 (1999)	1
Isopropyl alcohol (2-Propanol, Isopropanol)	EPA TO-17 Rev. 2 (1999)	1
Isopropylbenzene	EPA TO-17 Rev. 2 (1999)	1
m+p-xylene	EPA TO-17 Rev. 2 (1999)	1
Methyl tert-butyl ether (MTBE)	EPA TO-17 Rev. 2 (1999)	1
Methylcyclohexane	EPA TO-17 Rev. 2 (1999)	1
Methylene chloride (Dichloromethane)	EPA TO-17 Rev. 2 (1999)	1
Naphthalene	EPA TO-17 Rev. 2 (1999)	1

Matrix/Analyte	Method	Notes
Air		
n-Heptane	EPA TO-17 Rev. 2 (1999)	1
n-Hexane	EPA TO-17 Rev. 2 (1999)	1
n-Propylbenzene	EPA TO-17 Rev. 2 (1999)	1
o-Xylene	EPA TO-17 Rev. 2 (1999)	1
Phenanthrene	EPA TO-17 Rev. 2 (1999)	1
Pyrene	EPA TO-17 Rev. 2 (1999)	1
Styrene	EPA TO-17 Rev. 2 (1999)	1
Tetrachloroethylene (Perchloroethylene)	EPA TO-17 Rev. 2 (1999)	1
Toluene	EPA TO-17 Rev. 2 (1999)	1
trans-1,2-Dichloroethylene	EPA TO-17 Rev. 2 (1999)	1
Trichloroethene (Trichloroethylene)	EPA TO-17 Rev. 2 (1999)	1
Trichlorofluoromethane (Freon 11)	EPA TO-17 Rev. 2 (1999)	1
Vinyl chloride	EPA TO-17 Rev. 2 (1999)	1
Xylene (total)	EPA TO-17 Rev. 2 (1999)	1

Accredited Parameter Note Detail

(1) Accreditation based in part on recognition of Oregon NELAP accreditation. (2) GC/MS detector.

05/14/2021

Authentication Signature
Rebecca Wood, Lab Accreditation Unit Supervisor

Date

The State of Washington Department of Ecology

Analytical Resources, Incorporated
Tukwila, WA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective July 1, 2020 and shall expire June 30, 2021.

Witnessed under my hand on August 4, 2020

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C558

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

SCOPE OF ACCREDITATION

Analytical Resources, Incorporated

Tukwila, WA

is accredited for the analytes listed below using the methods indicated. Full accreditation is granted unless stated otherwise in a note. EPA is the U.S. Environmental Protection Agency. SM is "Standard Methods for the Examination of Water and Wastewater." SM refers to EPA approved method versions. ASTM is the American Society for Testing and Materials. USGS is the U.S. Geological Survey. AOAC is the Association of Official Analytical Chemists. Other references are described in notes.

Matrix/Analyte	Method	Notes
Drinking Water		
Turbidity	EPA 180.1_2_1993	
Chloride	EPA 300.0_2.1_1993	
Fluoride	EPA 300.0_2.1_1993	
Nitrate	EPA 300.0_2.1_1993	
Nitrite	EPA 300.0_2.1_1993	
Sulfate	EPA 300.0_2.1_1993	
Color	SM 2120 B-2011	
Turbidity	SM 2130 B-2011	
Alkalinity	SM 2320 B-2011	
Hardness (calc.)	SM 2340 B-2011	
Specific Conductance	SM 2510 B-2011	
Solids, Total Dissolved	SM 2540 C-2011	
Chloride	SM 4110 B-2011	
Fluoride	SM 4110 B-2011	
Nitrate	SM 4110 B-2011	
Nitrite	SM 4110 B-2011	
Orthophosphate	SM 4110 B-2011	5
Sulfate	SM 4110 B-2011	
Cyanide, Total	SM 4500-CN^- E-2011	
pH	SM 4500-H+ B-2011	8
Dissolved Organic Carbon	SM 5310 B-2011	
Total Organic Carbon	SM 5310 B-2011	
Aluminum	EPA 200.7_4.4_1994	
Barium	EPA 200.7_4.4_1994	
Beryllium	EPA 200.7_4.4_1994	
Cadmium	EPA 200.7_4.4_1994	

Matrix/Analyte	Method	Notes
Drinking Water		
Calcium	EPA 200.7_4.4_1994	
Chromium	EPA 200.7_4.4_1994	
Copper	EPA 200.7_4.4_1994	
Iron	EPA 200.7_4.4_1994	
Magnesium	EPA 200.7_4.4_1994	
Manganese	EPA 200.7_4.4_1994	
Nickel	EPA 200.7_4.4_1994	
Silver	EPA 200.7_4.4_1994	
Sodium	EPA 200.7_4.4_1994	
Zinc	EPA 200.7_4.4_1994	
Aluminum	EPA 200.8_5.4_1994	
Antimony	EPA 200.8_5.4_1994	
Arsenic	EPA 200.8_5.4_1994	
Barium	EPA 200.8_5.4_1994	
Beryllium	EPA 200.8_5.4_1994	5
Cadmium	EPA 200.8_5.4_1994	
Chromium	EPA 200.8_5.4_1994	
Copper	EPA 200.8_5.4_1994	
Lead	EPA 200.8_5.4_1994	
Manganese	EPA 200.8_5.4_1994	
Nickel	EPA 200.8_5.4_1994	
Selenium	EPA 200.8_5.4_1994	
Silver	EPA 200.8_5.4_1994	
Thallium	EPA 200.8_5.4_1994	
Zinc	EPA 200.8_5.4_1994	
Mercury	EPA 245.1_3_1994	
1,1,1,2-Tetrachloroethane	EPA 524.3_1.0_2009	14
1,1,1-Trichloroethane	EPA 524.3_1.0_2009	14
1,1,2,2-Tetrachloroethane	EPA 524.3_1.0_2009	14
1,1,2-Trichloroethane	EPA 524.3_1.0_2009	14
1,1-Dichloroethane	EPA 524.3_1.0_2009	14
1,1-Dichloroethylene	EPA 524.3_1.0_2009	14
1,1-Dichloropropene	EPA 524.3_1.0_2009	14
1,2,3-Trichlorobenzene	EPA 524.3_1.0_2009	14
1,2,3-Trichloropropane	EPA 524.3_1.0_2009	14
1,2,4-Trichlorobenzene	EPA 524.3_1.0_2009	14
1,2,4-Trimethylbenzene	EPA 524.3_1.0_2009	14

Matrix/Analyte	Method	Notes
Drinking Water		
1,2-Dichlorobenzene	EPA 524.3_1.0_2009	14
1,2-Dichloroethane (Ethylene dichloride)	EPA 524.3_1.0_2009	14
1,2-Dichloropropane	EPA 524.3_1.0_2009	14
1,3,5-Trimethylbenzene	EPA 524.3_1.0_2009	14
1,3-Butadiene	EPA 524.3_1.0_2009	14
1,3-Dichloropropane	EPA 524.3_1.0_2009	14
1,4-Dichlorobenzene	EPA 524.3_1.0_2009	14
1-Chlorobutane	EPA 524.3_1.0_2009	14
2-Chlorotoluene	EPA 524.3_1.0_2009	14
4-Chlorotoluene	EPA 524.3_1.0_2009	14
4-Isopropyltoluene (p-Cymene)	EPA 524.3_1.0_2009	14
Allyl chloride (3-Chloropropene)	EPA 524.3_1.0_2009	14
Benzene	EPA 524.3_1.0_2009	14
Bromobenzene	EPA 524.3_1.0_2009	14
Bromochloromethane	EPA 524.3_1.0_2009	14
Carbon disulfide	EPA 524.3_1.0_2009	14
Carbon tetrachloride	EPA 524.3_1.0_2009	14
Chlorobenzene	EPA 524.3_1.0_2009	14
Chlorodifluoromethane (Freon-22)	EPA 524.3_1.0_2009	14
cis & trans-1,2-Dichloroethene	EPA 524.3_1.0_2009	14
cis-1,2-Dichloroethylene	EPA 524.3_1.0_2009	14
cis-1,3-Dichloropropene	EPA 524.3_1.0_2009	14
cis-2-Octene	EPA 524.3_1.0_2009	14
Dibromomethane	EPA 524.3_1.0_2009	14
Dichlorodifluoromethane (Freon-12)	EPA 524.3_1.0_2009	14
Diethyl ether	EPA 524.3_1.0_2009	14
Di-isopropylether (DIPE)	EPA 524.3_1.0_2009	14
Ethyl methacrylate	EPA 524.3_1.0_2009	14
Ethyl tert-Butyl alcohol	EPA 524.3_1.0_2009	14
Ethylbenzene	EPA 524.3_1.0_2009	14
Ethyl-t-butylether (ETBE)	EPA 524.3_1.0_2009	14
Hexachlorobutadiene	EPA 524.3_1.0_2009	14
Hexachloroethane	EPA 524.3_1.0_2009	14
Iodomethane (Methyl iodide)	EPA 524.3_1.0_2009	14
Isopropylbenzene	EPA 524.3_1.0_2009	14
m+p-xylene	EPA 524.3_1.0_2009	14
Methyl acetate	EPA 524.3_1.0_2009	14

Matrix/Analyte	Method	Notes
Drinking Water		
Methyl bromide (Bromomethane)	EPA 524.3_1.0_2009	14
Methyl chloride (Chloromethane)	EPA 524.3_1.0_2009	14
Methyl tert-butyl ether (MTBE)	EPA 524.3_1.0_2009	14
Methylene chloride (Dichloromethane)	EPA 524.3_1.0_2009	14
Naphthalene	EPA 524.3_1.0_2009	14
n-Butylbenzene	EPA 524.3_1.0_2009	14
n-Propylbenzene	EPA 524.3_1.0_2009	14
o-Xylene	EPA 524.3_1.0_2009	14
Pentachloroethane	EPA 524.3_1.0_2009	14
sec-Butylbenzene	EPA 524.3_1.0_2009	14
Styrene	EPA 524.3_1.0_2009	14
tert-Amyl ethyl ether (TAEE)	EPA 524.3_1.0_2009	14
tert-amylmethylether (TAME)	EPA 524.3_1.0_2009	14
tert-Butylbenzene	EPA 524.3_1.0_2009	14
Tetrachloroethylene (Perchloroethylene)	EPA 524.3_1.0_2009	14
Tetrahydrofuran (THF)	EPA 524.3_1.0_2009	14
Toluene	EPA 524.3_1.0_2009	14
trans-1,3-Dichloropropylene	EPA 524.3_1.0_2009	14
Trichloroethene (Trichloroethylene)	EPA 524.3_1.0_2009	14
Trichlorofluoromethane (Freon 11)	EPA 524.3_1.0_2009	14
Vinyl chloride	EPA 524.3_1.0_2009	14
Xylene (total)	EPA 524.3_1.0_2009	14
Non-Potable Water		
Specific Conductance	EPA 120.1_1982	1
Solids, Total Volatile	EPA 160.4_1971	1
n-Hexane Extractable Material (O&G)	EPA 1664B -10 (HEM)	
Turbidity	EPA 180.1_2_1993	1
Bromide	EPA 300.0_2.1_1993	1
Chloride	EPA 300.0_2.1_1993	1
Fluoride	EPA 300.0_2.1_1993	1
Nitrate	EPA 300.0_2.1_1993	
Nitrite	EPA 300.0_2.1_1993	
Orthophosphate	EPA 300.0_2.1_1993	1
Sulfate	EPA 300.0_2.1_1993	1
Cyanide, Total	EPA 335.4_1_1993	
Nitrogen, Total Kjeldahl	EPA 351.2_2_1993	1
Nitrate	EPA 353.2_2_1993	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Nitrate + Nitrite	EPA 353.2_2_1993	1
Nitrite	EPA 353.2_2_1993	1
Sulfate	EPA 375.2_2_1993	1
Chemical Oxygen Demand (COD)	EPA 410.4_2_1993	1
Phenolics, Total	EPA 420.1_1978	1,5
Color	SM 2120 B-2011	1
Turbidity	SM 2130 B-2011	1
Alkalinity	SM 2320 B-2011	1
Langlier index	SM 2330 B-2011	
Hardness (calc.)	SM 2340 B-2011	
Specific Conductance	SM 2510 B-2011	1
Salinity	SM 2520 B-2011	1
Solids, Total	SM 2540 B-2011	1
Solids, Total Dissolved	SM 2540 C-2011	1
Solids, Total Suspended	SM 2540 D-2011	1
Solids, Total, Fixed and Volatile	SM 2540 E-2011	1,5
Solids, Settleable	SM 2540 F-2011	1
Oxidation-Reduction Potential (ORP)	SM 2580B-2011	
Chromium, Hexavalent	SM 3500-Cr B-2011	1
Iron, Ferrous	SM 3500-Fe B-2011	
Bromide	SM 4110 B-2011	1
Chloride	SM 4110 B-2011	1
Fluoride	SM 4110 B-2011	1
Nitrate	SM 4110 B-2011	
Nitrite	SM 4110 B-2011	
Orthophosphate	SM 4110 B-2011	1
Sulfate	SM 4110 B-2011	1
Cyanide, Weak Acid Dissociable	SM 4500 CN^- I-2011	
Chloride	SM 4500-Cl^- G-2011	
Cyanide, Total	SM 4500-CN^- E-2011	1
Cyanides, Amenable to Chlorination	SM 4500-CN^- G-2011	1
Fluoride	SM 4500-F^- C-2011	1
pH	SM 4500-H+ B-2011	1,8
Ammonia	SM 4500-NH3 H-2011	1
Nitrogen, Total Kjeldahl	SM 4500-Norg D-2011	1
Dissolved Oxygen	SM 4500-O C-2011	5
Orthophosphate	SM 4500-P E-2011	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Phosphorus, total	SM 4500-P E-2011	1
Sulfide	SM 4500-$S2^-$ D-2011	1
Sulfite	SM 4500-$SO3^-$ B-2011	1
Sulfate	SM 4500-$SO4^-$ G-2011	1
Biochemical Oxygen Demand (BOD)	SM 5210 B-2011	1
Carbonaceous BOD (CBOD)	SM 5210 B-2011	1
Chemical Oxygen Demand (COD)	SM 5220 D-2011	1
Dissolved Organic Carbon	SM 5310 B-2011	1
Total Organic Carbon	SM 5310 B-2011	1
non-Polar Extractable Material (TPH)	SM 5520 F-2011	
Phenolics, Total	SM 5530 D-2010	1
Aluminum	EPA 200.7_4.4_1994	1
Antimony	EPA 200.7_4.4_1994	1
Arsenic	EPA 200.7_4.4_1994	1
Barium	EPA 200.7_4.4_1994	1
Beryllium	EPA 200.7_4.4_1994	1
Boron	EPA 200.7_4.4_1994	1
Cadmium	EPA 200.7_4.4_1994	1
Calcium	EPA 200.7_4.4_1994	1
Chromium	EPA 200.7_4.4_1994	1
Cobalt	EPA 200.7_4.4_1994	1
Copper	EPA 200.7_4.4_1994	1
Iron	EPA 200.7_4.4_1994	1
Lead	EPA 200.7_4.4_1994	1
Magnesium	EPA 200.7_4.4_1994	1
Manganese	EPA 200.7_4.4_1994	1
Molybdenum	EPA 200.7_4.4_1994	1
Nickel	EPA 200.7_4.4_1994	1
Potassium	EPA 200.7_4.4_1994	1
Selenium	EPA 200.7_4.4_1994	1
Silicon	EPA 200.7_4.4_1994	1
Silver	EPA 200.7_4.4_1994	1
Sodium	EPA 200.7_4.4_1994	1
Strontium	EPA 200.7_4.4_1994	1
Thallium	EPA 200.7_4.4_1994	1
Tin	EPA 200.7_4.4_1994	1
Titanium	EPA 200.7_4.4_1994	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
Vanadium	EPA 200.7_4.4_1994	1
Zinc	EPA 200.7_4.4_1994	1
Aluminum	EPA 200.8_5.4_1994	1
Antimony	EPA 200.8_5.4_1994	1
Arsenic	EPA 200.8_5.4_1994	1
Barium	EPA 200.8_5.4_1994	1
Beryllium	EPA 200.8_5.4_1994	1
Cadmium	EPA 200.8_5.4_1994	1
Calcium	EPA 200.8_5.4_1994	1
Chromium	EPA 200.8_5.4_1994	1
Cobalt	EPA 200.8_5.4_1994	1
Copper	EPA 200.8_5.4_1994	1
Iron	EPA 200.8_5.4_1994	1
Lead	EPA 200.8_5.4_1994	1
Magnesium	EPA 200.8_5.4_1994	1
Manganese	EPA 200.8_5.4_1994	1
Molybdenum	EPA 200.8_5.4_1994	1
Nickel	EPA 200.8_5.4_1994	1
Potassium	EPA 200.8_5.4_1994	1
Selenium	EPA 200.8_5.4_1994	1
Silver	EPA 200.8_5.4_1994	1
Sodium	EPA 200.8_5.4_1994	1
Thallium	EPA 200.8_5.4_1994	1
Vanadium	EPA 200.8_5.4_1994	1
Zinc	EPA 200.8_5.4_1994	1
Mercury	EPA 245.1_3_1994	1
VOA & Semi-VOA Compounds	ARI SOP 427S	4,12
4,4'-DDD	EPA 608.3	13
4,4'-DDE	EPA 608.3	13
4,4'-DDT	EPA 608.3	13
Alachlor	EPA 608.3	13
Aldrin	EPA 608.3	13
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608.3	13
alpha-Chlordane	EPA 608.3	13
Aroclor-1016 (PCB-1016)	EPA 608.3	13
Aroclor-1221 (PCB-1221)	EPA 608.3	13
Aroclor-1232 (PCB-1232)	EPA 608.3	13

Matrix/Analyte	Method	Notes
Non-Potable Water		
Aroclor-1242 (PCB-1242)	EPA 608.3	13
Aroclor-1248 (PCB-1248)	EPA 608.3	13
Aroclor-1254 (PCB-1254)	EPA 608.3	13
Aroclor-1260 (PCB-1260)	EPA 608.3	13
Aroclor-1262 (PCB-1262)	EPA 608.3	13
Aroclor-1268 (PCB-1268)	EPA 608.3	13
beta-BHC (beta-Hexachlorocyclohexane)	EPA 608.3	13
Chlordane (tech.)	EPA 608.3	13
delta-BHC	EPA 608.3	13
Dieldrin	EPA 608.3	13
Endosulfan I	EPA 608.3	13
Endosulfan II	EPA 608.3	13
Endosulfan sulfate	EPA 608.3	13
Endrin	EPA 608.3	13
Endrin aldehyde	EPA 608.3	13
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608.3	13
gamma-Chlordane	EPA 608.3	13
Heptachlor	EPA 608.3	13
Heptachlor epoxide	EPA 608.3	13
Hexachlorobenzene	EPA 608.3	13
Hexachlorocyclopentadiene	EPA 608.3	13
Methoxychlor	EPA 608.3	13
Toxaphene (Chlorinated camphene)	EPA 608.3	13
Acetylene	EPA RSK-175	1
Ethane	EPA RSK-175	1
Ethene	EPA RSK-175	1
Methane	EPA RSK-175	1
n-Propane	EPA RSK-175	1
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	EPA 1613B_1994	1
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	EPA 1613B_1994	1
1,2,3,4,6,7,8-Hpcdd	EPA 1613B_1994	1
1,2,3,4,6,7,8-Hpcdf	EPA 1613B_1994	1
1,2,3,4,7,8,9-Hpcdf	EPA 1613B_1994	1
1,2,3,4,7,8-Hxcdd	EPA 1613B_1994	1
1,2,3,4,7,8-Hxcdf	EPA 1613B_1994	1
1,2,3,6,7,8-Hxcdd	EPA 1613B_1994	1
1,2,3,6,7,8-Hxcdf	EPA 1613B_1994	1

Matrix/Analyte	Method	Notes
Non-Potable Water		
1,2,3,7,8,9-Hpcdf	EPA 1613B_1994	
1,2,3,7,8,9-Hxcdd	EPA 1613B_1994	1
1,2,3,7,8,9-Hxcdf	EPA 1613B_1994	1
1,2,3,7,8-Pecdd	EPA 1613B_1994	1
1,2,3,7,8-Pecdf	EPA 1613B_1994	1
2,3,4,6,7,8-Hxcdf	EPA 1613B_1994	1
2,3,4,7,8-Pecdf	EPA 1613B_1994	1
2,3,7,8-TCDF	EPA 1613B_1994	1
2,3,7,8-Tetrachloro dibenzo- p-dioxin	EPA 1613B_1994	1
Hpcdd, total	EPA 1613B_1994	1
Hpcdf, total	EPA 1613B_1994	1
Hxcdd, total	EPA 1613B_1994	1
Hxcdf, total	EPA 1613B_1994	1
Pecdd, total	EPA 1613B_1994	1
Pecdf, total	EPA 1613B_1994	1
TCDD, total	EPA 1613B_1994	1
TCDF, total	EPA 1613B_1994	1
1,1,1,2-Tetrachloroethane	EPA 624.1	
1,1,1-Trichloroethane	EPA 624.1	
1,1,2,2-Tetrachloroethane	EPA 624.1	
1,1,2-Trichloroethane	EPA 624.1	
1,1-Dichloroethane	EPA 624.1	
1,1-Dichloroethylene	EPA 624.1	
1,2,3-Trichlorobenzene	EPA 624.1	
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 624.1	
1,2-Dichlorobenzene	EPA 624.1	
1,2-Dichloroethane (Ethylene dichloride)	EPA 624.1	
1,2-Dichloropropane	EPA 624.1	
1,3-Dichlorobenzene	EPA 624.1	
1,4-Dichlorobenzene	EPA 624.1	
2-Butanone (Methyl ethyl ketone, MEK)	EPA 624.1	
2-Chloroethyl vinyl ether	EPA 624.1	
4-Isopropyltoluene (p-Cymene)	EPA 624.1	
Acetone	EPA 624.1	
Acetonitrile	EPA 624.1	
Acrolein (Propenal)	EPA 624.1	
Acrylonitrile	EPA 624.1	

Matrix/Analyte	Method	Notes
Non-Potable Water		
Benzene	EPA 624.1	
Bromodichloromethane	EPA 624.1	
Bromoform	EPA 624.1	
Carbon tetrachloride	EPA 624.1	
Chlorobenzene	EPA 624.1	
Chlorodibromomethane	EPA 624.1	
Chloroethane (Ethyl chloride)	EPA 624.1	
Chloroform	EPA 624.1	
cis-1,3-Dichloropropene	EPA 624.1	
Dibromochloropropane	EPA 624.1	
Dichloromethane (DCM, Methylene chloride)	EPA 624.1	
Diethyl ether	EPA 624.1	
Ethylbenzene	EPA 624.1	
Methyl bromide (Bromomethane)	EPA 624.1	
Methyl chloride (Chloromethane)	EPA 624.1	
Methyl tert-butyl ether (MTBE)	EPA 624.1	
Methylene chloride (Dichloromethane)	EPA 624.1	
Nitrobenzene	EPA 624.1	
p-Dioxane	EPA 624.1	
Styrene	EPA 624.1	
Tetrachloroethylene (Perchloroethylene)	EPA 624.1	
Toluene	EPA 624.1	
trans-1,2-Dichloroethylene	EPA 624.1	
trans-1,3-Dichloropropylene	EPA 624.1	
Trichloroethene (Trichloroethylene)	EPA 624.1	
Trichlorofluoromethane (Freon 11)	EPA 624.1	
Vinyl chloride	EPA 624.1	
1,2,4-Trichlorobenzene	EPA 625.1	
1,2-Diphenylhydrazine	EPA 625.1	
1-Chloronaphthalene	EPA 625.1	
2,3,6-Trichlorophenol (4C)	EPA 625.1	
2,4,5-Trichlorophenol	EPA 625.1	
2,4,6-Trichlorophenol	EPA 625.1	
2,4-Dichlorophenol	EPA 625.1	
2,4-Dimethylphenol	EPA 625.1	
2,4-Dinitrophenol	EPA 625.1	
2,4-Dinitrotoluene (2,4-DNT)	EPA 625.1	

Matrix/Analyte	Method	Notes
Non-Potable Water		
2,6-Dinitrotoluene (2,6-DNT)	EPA 625.1	
2-Chloronaphthalene	EPA 625.1	
2-Chlorophenol	EPA 625.1	
2-Nitrophenol	EPA 625.1	
3,3'-Dichlorobenzidine	EPA 625.1	
4,6-Dinitro-2-methylphenol	EPA 625.1	
4-Bromophenyl phenyl ether (BDE-3)	EPA 625.1	
4-Chloro-3-methylphenol	EPA 625.1	
4-Chlorophenol	EPA 625.1	
4-Chlorophenyl phenylether	EPA 625.1	
4-Nitrophenol	EPA 625.1	
Acenaphthene	EPA 625.1	
Acenaphthylene	EPA 625.1	
Aldrin	EPA 625.1	
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 625.1	
alpha-Terpineol	EPA 625.1	
Anthracene	EPA 625.1	
Benzidine	EPA 625.1	
Benzo(a)anthracene	EPA 625.1	
Benzo(a)pyrene	EPA 625.1	
Benzo(g,h,i)perylene	EPA 625.1	
Benzo(k)fluoranthene	EPA 625.1	
Benzo[b]fluoranthene	EPA 625.1	
Benzoic acid	EPA 625.1	
Biphenyl	EPA 625.1	
bis(2-Chloroethoxy)methane	EPA 625.1	
bis(2-Chloroethyl) ether	EPA 625.1	
bis(2-Chloroisopropyl) ether	EPA 625.1	
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625.1	
Butyl benzyl phthalate	EPA 625.1	
Carbazole	EPA 625.1	
Chrysene	EPA 625.1	
Dibenz(a,h) anthracene	EPA 625.1	
Dibenzofuran	EPA 625.1	
Diethyl phthalate	EPA 625.1	
Dimethyl phthalate	EPA 625.1	
Di-n-butyl phthalate	EPA 625.1	

Matrix/Analyte	Method	Notes
Non-Potable Water		
Di-n-octyl phthalate	EPA 625.1	
Fluoranthene	EPA 625.1	
Fluorene	EPA 625.1	
Hexachlorobenzene	EPA 625.1	
Hexachlorobutadiene	EPA 625.1	
Hexachlorocyclopentadiene	EPA 625.1	
Hexachloroethane	EPA 625.1	
Indeno(1,2,3-cd) pyrene	EPA 625.1	
Isophorone	EPA 625.1	
Naphthalene	EPA 625.1	
n-Decane	EPA 625.1	
n-Docosane	EPA 625.1	
n-Dodecane	EPA 625.1	
n-Eicosane	EPA 625.1	
n-Hexadecane	EPA 625.1	
Nitrobenzene	EPA 625.1	
N-Nitrosodiethylamine	EPA 625.1	
N-Nitrosodimethylamine	EPA 625.1	
N-Nitroso-di-n-butylamine	EPA 625.1	
N-Nitroso-di-n-propylamine	EPA 625.1	
N-Nitrosodiphenylamine	EPA 625.1	
n-Octadecane	EPA 625.1	
n-Tetradecane	EPA 625.1	
Pentachloroethane	EPA 625.1	
Pentachlorophenol	EPA 625.1	
Phenanthrene	EPA 625.1	
Phenol	EPA 625.1	
Pyrene	EPA 625.1	
Pyridine	EPA 625.1	
Total coliforms-count	SM 9222 B (mEndo)	
Fecal coliform-count	SM 9222 D (mFC)-06	
Solid and Chemical Materials		
n-Hexane Extractable Material (O&G)	EPA 1664B -10 (HEM)	
Nitrate + Nitrite	EPA 353.2_2_1993	1
Chromium, Hexavalent	EPA 7196A_1_1992	1
Cyanide, Total	EPA 9010C_2002	1
Cyanide, Total	EPA 9014_1996	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Sulfide	EPA 9030B_2_1996	5
pH	EPA 9045D_2002	1
Bromide	EPA 9056A_(02/07)	1
Chloride	EPA 9056A_(02/07)	1
Fluoride	EPA 9056A_(02/07)	1
Nitrate	EPA 9056A_(02/07)	
Nitrite	EPA 9056A_(02/07)	
Orthophosphate	EPA 9056A_(02/07)	1
Sulfate	EPA 9056A_(02/07)	1
Total Organic Carbon	EPA 9060A_1_2004	
Phenolics, Total	EPA 9065_1986	1,5
n-Hexane Extractable Material (O&G)	EPA 9071 B_2_1999	
Cation Exchange Capacity	EPA 9080_0_1986	
Total Organic Carbon	PSEP 1986 Combust/Grav	
Alkalinity	SM 2320 B-2011	11
Solids, Total, Fixed and Volatile	SM 2540 G-2011	
Oxidation-Reduction Potential (ORP)	SM 2580B-2011	
Ammonia	SM 4500-NH3 H-2011	1
Nitrate	SM 4500-$NO3^-$ H-2011	11
Nitrate + Nitrite	SM 4500-$NO3^-$ H-2011	11
Nitrite	SM 4500-$NO3^-$ H-2011	11
Nitrogen, Total Kjeldahl	SM 4500-Norg D-2011	1
Phosphorus, total	SM 4500-P E-2011	1
Sulfide	SM 4500-$S2^-$ D-2011	1
Sulfate	SM 4500-$SO4^-$ G-2011	1,11
Biochemical Oxygen Demand (BOD)	SM 5210 B-2011	
Chemical Oxygen Demand (COD)	SM 5220 D-2011	
non-Polar Extractable Material (TPH)	SM 5520 F-2011	11
n-Hexane Extractable Material (O&G)	SM 5520 G-2011	
Aluminum	EPA 6010D_(7/18)	1
Antimony	EPA 6010D_(7/18)	1
Arsenic	EPA 6010D_(7/18)	1
Barium	EPA 6010D_(7/18)	1
Beryllium	EPA 6010D_(7/18)	1
Boron	EPA 6010D_(7/18)	1
Cadmium	EPA 6010D_(7/18)	1
Calcium	EPA 6010D_(7/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Chromium	EPA 6010D_(7/18)	1
Cobalt	EPA 6010D_(7/18)	1
Copper	EPA 6010D_(7/18)	1
Iron	EPA 6010D_(7/18)	1
Lead	EPA 6010D_(7/18)	1
Magnesium	EPA 6010D_(7/18)	1
Manganese	EPA 6010D_(7/18)	1
Molybdenum	EPA 6010D_(7/18)	1
Nickel	EPA 6010D_(7/18)	1
Potassium	EPA 6010D_(7/18)	1
Selenium	EPA 6010D_(7/18)	1
Silicon	EPA 6010D_(7/18)	1
Silver	EPA 6010D_(7/18)	1
Sodium	EPA 6010D_(7/18)	1
Strontium	EPA 6010D_(7/18)	1
Thallium	EPA 6010D_(7/18)	1
Tin	EPA 6010D_(7/18)	1
Titanium	EPA 6010D_(7/18)	1,5
Vanadium	EPA 6010D_(7/18)	1
Zinc	EPA 6010D_(7/18)	1
Aluminum	EPA 6020B_(7/14)	1
Antimony	EPA 6020B_(7/14)	1
Arsenic	EPA 6020B_(7/14)	1
Barium	EPA 6020B_(7/14)	1
Beryllium	EPA 6020B_(7/14)	1
Cadmium	EPA 6020B_(7/14)	1
Calcium	EPA 6020B_(7/14)	1
Chromium	EPA 6020B_(7/14)	1
Cobalt	EPA 6020B_(7/14)	1
Copper	EPA 6020B_(7/14)	1
Iron	EPA 6020B_(7/14)	1
Lead	EPA 6020B_(7/14)	1
Magnesium	EPA 6020B_(7/14)	1
Manganese	EPA 6020B_(7/14)	1
Molybdenum	EPA 6020B_(7/14)	1
Nickel	EPA 6020B_(7/14)	1
Potassium	EPA 6020B_(7/14)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Selenium	EPA 6020B_(7/14)	1
Silver	EPA 6020B_(7/14)	1
Sodium	EPA 6020B_(7/14)	1
Thallium	EPA 6020B_(7/14)	1
Vanadium	EPA 6020B_(7/14)	1
Zinc	EPA 6020B_(7/14)	1
Mercury	EPA 7470A_1_1994	
Mercury	EPA 7471B_(1/98)	1
VOA & Semi-VOA Compounds	ARI SOP 427S	4
Diesel range organics (DRO)	EPA 8015C_(11/00)	
Gasoline range organics (GRO)	EPA 8015C_(11/00)	
2,3,4,5-Tetrachlorophenol	EPA 8041A_1_(2/07)	
2,3,4-Trichlorophenol	EPA 8041A_1_(2/07)	
2,3,5,6-Tetrachlorophenol	EPA 8041A_1_(2/07)	
2,3,6-Trichlorophenol	EPA 8041A_1_(2/07)	
2,4,5-Trichlorophenol	EPA 8041A_1_(2/07)	
2,4,6-Trichlorophenol	EPA 8041A_1_(2/07)	
2,4-Dichlorophenol	EPA 8041A_1_(2/07)	
2,4-Dimethylphenol	EPA 8041A_1_(2/07)	
2,4-Dinitrophenol	EPA 8041A_1_(2/07)	
2,5-Dinitrophenol	EPA 8041A_1_(2/07)	
2,6-Dichlorophenol	EPA 8041A_1_(2/07)	
2-Chlorophenol	EPA 8041A_1_(2/07)	
Pentachlorophenol	EPA 8041A_1_(2/07)	
2,4'-DDD	EPA 8081B_(2/07)	1,7
2,4'-DDE	EPA 8081B_(2/07)	1,7
2,4'-DDT	EPA 8081B_(2/07)	1,7
4,4'-DDD	EPA 8081B_(2/07)	1,7
4,4'-DDE	EPA 8081B_(2/07)	1,7
4,4'-DDT	EPA 8081B_(2/07)	1,7
Aldrin	EPA 8081B_(2/07)	1,7
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1,7
alpha-Chlordane	EPA 8081B_(2/07)	1,7
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1,7
Chlordane (tech.)	EPA 8081B_(2/07)	1,7
cis-Nonachlor	EPA 8081B_(2/07)	1,7
delta-BHC	EPA 8081B_(2/07)	1,7

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Dieldrin	EPA 8081B_(2/07)	1,7
Endosulfan I	EPA 8081B_(2/07)	1,7
Endosulfan II	EPA 8081B_(2/07)	1,7
Endosulfan sulfate	EPA 8081B_(2/07)	1,7
Endrin	EPA 8081B_(2/07)	1,7
Endrin aldehyde	EPA 8081B_(2/07)	1,7
Endrin ketone	EPA 8081B_(2/07)	1,7
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081B_(2/07)	1,7
Heptachlor	EPA 8081B_(2/07)	1,7
Heptachlor epoxide	EPA 8081B_(2/07)	1,7
Hexachlorobenzene	EPA 8081B_(2/07)	1,7
Hexachlorobutadiene	EPA 8081B_(2/07)	1,7
Hexachlorocyclopentadiene	EPA 8081B_(2/07)	7
Hexachloroethane	EPA 8081B_(2/07)	7
Methoxychlor	EPA 8081B_(2/07)	1,7
Mirex	EPA 8081B_(2/07)	1,7
Oxychlordane	EPA 8081B_(2/07)	1,7
Toxaphene (Chlorinated camphene)	EPA 8081B_(2/07)	1,7
trans-Nonachlor	EPA 8081B_(2/07)	1,7
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (BZ-194)	EPA 8082A_(2/07)	1
2,2',3,3',4,4',5,6-Octachlorobiphenyl (BZ-195)	EPA 8082A_(2/07)	1
2,2',3,3',4,4',5-Heptachlorobiphenyl (BZ-170)	EPA 8082A_(2/07)	1
2,2',3,3',4,4'-Hexachlorobiphenyl (BZ-128)	EPA 8082A_(2/07)	1
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ-201)	EPA 8082A_(2/07)	1
2,2',3,3',4,5,6'-Heptachlorobiphenyl (BZ-174)	EPA 8082A_(2/07)	1
2,2',3,3',4,5',6'-Heptachlorobiphenyl (BZ-177)	EPA 8082A_(2/07)	1
2,2',3,3',4,6'-Hexachlorobiphenyl (BZ-132)	EPA 8082A_(2/07)	1
2,2',3,4,4',5,5',6-Octachlorobiphenyl (BZ-203)	EPA 8082A_(2/07)	1
2,2',3,4,4',5,5'-Heptachlorobiphenyl (BZ-180)	EPA 8082A_(2/07)	1
2,2',3,4,4',5',6-Heptabromodiphenylether (BDE-183)	EPA 8082A_(2/07)	
2,2',3,4,4',5',6-Heptachlorobiphenyl (BZ-183)	EPA 8082A_(2/07)	1
2,2',3,4,4',5'-Hexabromodiphenylether (BDE-138)	EPA 8082A_(2/07)	1
2,2',3,4,4',5'-Hexachlorobiphenyl (BZ-138)	EPA 8082A_(2/07)	1
2,2',3,4,4'-Pentabromodiphenylether (BDE-85)	EPA 8082A_(2/07)	1
2,2',3,4',5,5',6-Heptachlorobiphenyl (BZ-187)	EPA 8082A_(2/07)	1
2,2',3,4,5,5'-Hexachlorobiphenyl (BZ-141)	EPA 8082A_(2/07)	1
2,2',3,4',5',6-Hexachlorobiphenyl (BZ-149)	EPA 8082A_(2/07)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
2,2',3,4,5'-Pentachlorobiphenyl (BZ-87)	EPA 8082A_(2/07)	1
2,2',3,4',5'-Pentachlorobiphenyl (BZ-97)	EPA 8082A_(2/07)	1
2,2',3,5,5',6-Hexachlorobiphenyl (BZ-151)	EPA 8082A_(2/07)	1
2,2',3,5',6-Pentachlorobiphenyl (BZ-95)	EPA 8082A_(2/07)	1
2,2',3,5'-Tetrachlorobiphenyl (BZ-44)	EPA 8082A_(2/07)	1
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)	EPA 8082A_(2/07)	1
2,2',4,4',5,5'-Hexachlorobiphenyl (BZ-153)	EPA 8082A_(2/07)	1
2,2',4,4',5',6-Hexabromodiphenylether (BDE-154)	EPA 8082A_(2/07)	1
2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)	EPA 8082A_(2/07)	1
2,2',4,4',5-Pentachlorobiphenyl (BZ-99)	EPA 8082A_(2/07)	1
2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)	EPA 8082A_(2/07)	1
2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)	EPA 8082A_(2/07)	1
2,2',4,5,5'-Pentachlorobiphenyl (BZ-101)	EPA 8082A_(2/07)	1
2,2',4,5'-Tetrachlorobiphenyl (BZ-49)	EPA 8082A_(2/07)	1
2,2',4-Tribromodiphenylether (BDE-17)	EPA 8082A_(2/07)	1
2,2',5,5'-Tetrachlorobiphenyl (BZ-52)	EPA 8082A_(2/07)	1
2,2',5-Trichlorobiphenyl (BZ-18)	EPA 8082A_(2/07)	1
2,3,3',4,4',5-Hexachlorobiphenyl (BZ-156)	EPA 8082A_(2/07)	1
2,3,3',4,4',6-Hexachlorobiphenyl (BZ-158)	EPA 8082A_(2/07)	1
2,3,3',4,4'-Pentachlorobiphenyl (BZ-105)	EPA 8082A_(2/07)	1
2,3,3',4',6-Pentachlorobiphenyl (BZ-110)	EPA 8082A_(2/07)	1
2,3,3',4'-Tetrachlorobiphenyl (BZ-56)	EPA 8082A_(2/07)	1
2,3',4,4',5-Pentachlorobiphenyl (BZ-118)	EPA 8082A_(2/07)	1
2,3',4,4'-Tetrabromodiphenylether (BDE-66)	EPA 8082A_(2/07)	1
2,3,4,4'-Tetrachlorobiphenyl (BZ-60)	EPA 8082A_(2/07)	1
2,3',4,4'-Tetrachlorobiphenyl (BZ-66)	EPA 8082A_(2/07)	1
2,3',4',5-Tetrachlorobiphenyl (BZ-70)	EPA 8082A_(2/07)	1
2,3',4',6-Tetrabromodiphenylether (BDE-71)	EPA 8082A_(2/07)	1
2,3',4'-Trichlorobiphenyl (BZ-33)	EPA 8082A_(2/07)	1
2,4,4',5-Tetrachlorobiphenyl (BZ-74)	EPA 8082A_(2/07)	1
2,4,4'-Tribromodiphenylether (BDE-28)	EPA 8082A_(2/07)	1
2,4,4'-Trichlorobiphenyl (BZ-28)	EPA 8082A_(2/07)	1
2,4',5-Trichlorobiphenyl (BZ-31)	EPA 8082A_(2/07)	1
2,4'-Dichlorobiphenyl (BZ-8)	EPA 8082A_(2/07)	1
Aroclor-1016 (PCB-1016)	EPA 8082A_(2/07)	1,6
Aroclor-1221 (PCB-1221)	EPA 8082A_(2/07)	1,6
Aroclor-1232 (PCB-1232)	EPA 8082A_(2/07)	1,6

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Aroclor-1242 (PCB-1242)	EPA 8082A_(2/07)	1,6
Aroclor-1248 (PCB-1248)	EPA 8082A_(2/07)	1,6
Aroclor-1254 (PCB-1254)	EPA 8082A_(2/07)	1,6
Aroclor-1260 (PCB-1260)	EPA 8082A_(2/07)	1,6
Aroclor-1262 (PCB-1262)	EPA 8082A_(2/07)	1,6
Aroclor-1268 (PCB-1268)	EPA 8082A_(2/07)	1,6
>C10-C12 Aliphatic EPH	WDOE EPH_(1997)	1,3
>C10-C12 Aromatic EPH	WDOE EPH_(1997)	1,3
>C12-C16 Aliphatic EPH	WDOE EPH_(1997)	1,3
>C12-C16 Aromatic EPH	WDOE EPH_(1997)	1,3
>C16-C21 Aliphatic EPH	WDOE EPH_(1997)	1,3
>C16-C21 Aromatic EPH	WDOE EPH_(1997)	1,3
>C21-C34 Alpihatic EPH	WDOE EPH_(1997)	1,3
>C21-C34 Aromatic EPH	WDOE EPH_(1997)	3
C8-C10 Aliphatic EPH	WDOE EPH_(1997)	3
C8-C10 Aromatic EPH	WDOE EPH_(1997)	1,3
Diesel range organics (DRO)	WDOE NWTPH-Dx_(1997)	1,3
Gasoline range organics (GRO)	WDOE NWTPH-Gx_(1997)	1,3,9
>C10-C12 Aliphatic VPH	WDOE VPH_(1997)	1,3
>C10-C12 Aromatic VPH	WDOE VPH_(1997)	1,3
>C12-C13 Aromatic VPH	WDOE VPH_(1997)	1,3
>C6-C8 Aliphatic VPH	WDOE VPH_(1997)	1,3
>C8-C10 Aliphatic VPH	WDOE VPH_(1997)	1,3
C5-C6 Aliphatic VPH	WDOE VPH_(1997)	1,3
C8-C10 Aromatic VPH	WDOE VPH_(1997)	1,3
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	EPA 1613B_1994	1
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	EPA 1613B_1994	1
1,2,3,4,6,7,8-Hpcdd	EPA 1613B_1994	1
1,2,3,4,6,7,8-Hpcdf	EPA 1613B_1994	1
1,2,3,4,7,8,9-Hpcdf	EPA 1613B_1994	1
1,2,3,4,7,8-Hxcdd	EPA 1613B_1994	1
1,2,3,4,7,8-Hxcdf	EPA 1613B_1994	1
1,2,3,6,7,8-Hxcdd	EPA 1613B_1994	1
1,2,3,6,7,8-Hxcdf	EPA 1613B_1994	1
1,2,3,7,8,9-Hpcdf	EPA 1613B_1994	
1,2,3,7,8,9-Hxcdd	EPA 1613B_1994	1
1,2,3,7,8,9-Hxcdf	EPA 1613B_1994	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
1,2,3,7,8-Pecdd	EPA 1613B_1994	1
1,2,3,7,8-Pecdf	EPA 1613B_1994	1
2,3,4,6,7,8-Hxcdf	EPA 1613B_1994	1
2,3,4,7,8-Pecdf	EPA 1613B_1994	1
2,3,7,8-TCDF	EPA 1613B_1994	1
2,3,7,8-Tetrachloro dibenzo- p-dioxin	EPA 1613B_1994	1
Hpcdd, total	EPA 1613B_1994	1
Hpcdf, total	EPA 1613B_1994	1
Hxcdd, total	EPA 1613B_1994	1
Hxcdf, total	EPA 1613B_1994	1
Pecdd, total	EPA 1613B_1994	1
Pecdf, total	EPA 1613B_1994	1
TCDD, total	EPA 1613B_1994	1
TCDF, total	EPA 1613B_1994	1
1,1,1,2-Tetrachloroethane	EPA 8260D_4_(6/18)	1
1,1,1-Trichloroethane	EPA 8260D_4_(6/18)	1
1,1,2,2-Tetrachloroethane	EPA 8260D_4_(6/18)	1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260D_4_(6/18)	
1,1,2-Trichloroethane	EPA 8260D_4_(6/18)	1
1,1,2-Trichlorofluoroethane	EPA 8260D_4_(6/18)	
1,1-Dichloroethane	EPA 8260D_4_(6/18)	1
1,1-Dichloroethylene	EPA 8260D_4_(6/18)	1
1,1-Dichloropropene	EPA 8260D_4_(6/18)	1
1,2,3-Trichlorobenzene	EPA 8260D_4_(6/18)	1
1,2,3-Trichloropropane	EPA 8260D_4_(6/18)	1
1,2,3-Trimethylbenzene	EPA 8260D_4_(6/18)	
1,2,4-Trichlorobenzene	EPA 8260D_4_(6/18)	1
1,2,4-Trimethylbenzene	EPA 8260D_4_(6/18)	1
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260D_4_(6/18)	1
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260D_4_(6/18)	1
1,2-Dichlorobenzene	EPA 8260D_4_(6/18)	1
1,2-Dichloroethane (Ethylene dichloride)	EPA 8260D_4_(6/18)	1
1,2-Dichloropropane	EPA 8260D_4_(6/18)	1
1,3,5-Trimethylbenzene	EPA 8260D_4_(6/18)	1
1,3-Dichlorobenzene	EPA 8260D_4_(6/18)	1
1,3-Dichloropropane	EPA 8260D_4_(6/18)	1
1,4-Dichlorobenzene	EPA 8260D_4_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
1,4-Dioxane (1,4- Diethyleneoxide)	EPA 8260D_4_(6/18)	
1-Chlorohexane	EPA 8260D_4_(6/18)	
2,2-Dichloropropane	EPA 8260D_4_(6/18)	1
2,3-Dichloropropene	EPA 8260D_4_(6/18)	
2-Bromofluorobenzene	EPA 8260D_4_(6/18)	
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260D_4_(6/18)	1
2-Chloroethyl vinyl ether	EPA 8260D_4_(6/18)	1
2-Chlorotoluene	EPA 8260D_4_(6/18)	1
2-Hexanone	EPA 8260D_4_(6/18)	1
2-Pentanone	EPA 8260D_4_(6/18)	
4-Bromofluorobenzene	EPA 8260D_4_(6/18)	
4-Chlorotoluene	EPA 8260D_4_(6/18)	1
4-Isopropyltoluene (p-Cymene)	EPA 8260D_4_(6/18)	1
4-Methyl-1-Pentene	EPA 8260D_4_(6/18)	
4-Methyl-2-pentanone (MIBK)	EPA 8260D_4_(6/18)	1
Acetonitrile	EPA 8260D_4_(6/18)	
Acrolein (Propenal)	EPA 8260D_4_(6/18)	1
Acrylonitrile	EPA 8260D_4_(6/18)	1
Benzene	EPA 8260D_4_(6/18)	1
Bromobenzene	EPA 8260D_4_(6/18)	1
Bromochloromethane	EPA 8260D_4_(6/18)	1
Bromodichloromethane	EPA 8260D_4_(6/18)	1
Bromoethane (Ethyl Bromide)	EPA 8260D_4_(6/18)	1
Bromoform	EPA 8260D_4_(6/18)	1
Carbon disulfide	EPA 8260D_4_(6/18)	1
Carbon tetrachloride	EPA 8260D_4_(6/18)	1
Chlorobenzene	EPA 8260D_4_(6/18)	1
Chlorodibromomethane	EPA 8260D_4_(6/18)	1
Chloroethane (Ethyl chloride)	EPA 8260D_4_(6/18)	1
Chloroform	EPA 8260D_4_(6/18)	1
cis & trans-1,2-Dichloroethene	EPA 8260D_4_(6/18)	
cis-1,2-Dichloroethylene	EPA 8260D_4_(6/18)	1
cis-1,3-Dichloropropene	EPA 8260D_4_(6/18)	1
Cyclohexane	EPA 8260D_4_(6/18)	
Cyclohexanol	EPA 8260D_4_(6/18)	
Cyclohexanone	EPA 8260D_4_(6/18)	
Dibromofluoromethane	EPA 8260D_4_(6/18)	

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Dibromomethane	EPA 8260D_4_(6/18)	1
Dichlorodifluoromethane (Freon-12)	EPA 8260D_4_(6/18)	1
Diethyl ether	EPA 8260D_4_(6/18)	
Ethanol	EPA 8260D_4_(6/18)	
Ethyl acetate	EPA 8260D_4_(6/18)	
Ethylbenzene	EPA 8260D_4_(6/18)	1
Ethyl-t-butylether (ETBE)	EPA 8260D_4_(6/18)	1
Hexachlorobutadiene	EPA 8260D_4_(6/18)	1
Hexachloroethane	EPA 8260D_4_(6/18)	
Iodomethane (Methyl iodide)	EPA 8260D_4_(6/18)	1
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260D_4_(6/18)	
Isopropylbenzene	EPA 8260D_4_(6/18)	1
m+p-xylene	EPA 8260D_4_(6/18)	1
Methyl bromide (Bromomethane)	EPA 8260D_4_(6/18)	1
Methyl chloride (Chloromethane)	EPA 8260D_4_(6/18)	1
Methyl formate	EPA 8260D_4_(6/18)	
Methyl methacrylate	EPA 8260D_4_(6/18)	
Methyl tert-butyl ether (MTBE)	EPA 8260D_4_(6/18)	1
Methylcyclohexane	EPA 8260D_4_(6/18)	
Methylene chloride (Dichloromethane)	EPA 8260D_4_(6/18)	1
Naphthalene	EPA 8260D_4_(6/18)	1
n-Butylbenzene	EPA 8260D_4_(6/18)	1
n-Hexane	EPA 8260D_4_(6/18)	
n-Propylbenzene	EPA 8260D_4_(6/18)	1
o-Xylene	EPA 8260D_4_(6/18)	1
sec-Butylbenzene	EPA 8260D_4_(6/18)	1
Styrene	EPA 8260D_4_(6/18)	1
tert-Amyl alcohol (TAA)	EPA 8260D_4_(6/18)	
tert-Amyl ethyl ether (TAEE)	EPA 8260D_4_(6/18)	
tert-amylmethylether (TAME)	EPA 8260D_4_(6/18)	1
tert-Butyl alcohol	EPA 8260D_4_(6/18)	1
tert-Butylbenzene	EPA 8260D_4_(6/18)	1
Tetrachloroethylene (Perchloroethylene)	EPA 8260D_4_(6/18)	1
Toluene	EPA 8260D_4_(6/18)	1
trans-1,2-Dichloroethylene	EPA 8260D_4_(6/18)	1
trans-1,3-Dichloropropylene	EPA 8260D_4_(6/18)	1
trans-1,4-Dichloro-2-butene	EPA 8260D_4_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Trichloroethene (Trichloroethylene)	EPA 8260D_4_(6/18)	1
Trichlorofluoromethane (Freon 11)	EPA 8260D_4_(6/18)	1
Vinyl acetate	EPA 8260D_4_(6/18)	1
Vinyl chloride	EPA 8260D_4_(6/18)	1
Xylene (total)	EPA 8260D_4_(6/18)	
1,1,1,2-Tetrachloroethane	EPA 8260D_SIM_4_(6/18)	1,2
1,1-Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1,2
1,2-Dichloroethane (Ethylene dichloride)	EPA 8260D_SIM_4_(6/18)	1,2
Acrylonitrile	EPA 8260D_SIM_4_(6/18)	1,2
Benzene	EPA 8260D_SIM_4_(6/18)	1,2
cis-1,2-Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1,2
Tetrachloroethylene (Perchloroethylene)	EPA 8260D_SIM_4_(6/18)	1,2
trans-1,2-Dichloroethylene	EPA 8260D_SIM_4_(6/18)	1,2
Trichloroethene (Trichloroethylene)	EPA 8260D_SIM_4_(6/18)	1,2
Vinyl chloride	EPA 8260D_SIM_4_(6/18)	1,2
1,2,4,5-Tetrachlorobenzene	EPA 8270E_6_(6/18)	
1,2,4-Trichlorobenzene	EPA 8270E_6_(6/18)	1
1,2-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,2-Diphenylhydrazine	EPA 8270E_6_(6/18)	
1,3-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,4-Dichlorobenzene	EPA 8270E_6_(6/18)	1
1,4-Dioxane (1,4- Diethyleneoxide)	EPA 8270E_6_(6/18)	1
1-Chloronaphthalene	EPA 8270E_6_(6/18)	
1-Methylnaphthalene	EPA 8270E_6_(6/18)	1
2,3,4,6-Tetrachlorophenol	EPA 8270E_6_(6/18)	
2,4,5-Trichlorophenol	EPA 8270E_6_(6/18)	1
2,4,5-Trimethylaniline	EPA 8270E_6_(6/18)	
2,4,6-Trichlorophenol	EPA 8270E_6_(6/18)	1
2,4-Dichlorophenol	EPA 8270E_6_(6/18)	1
2,4-Dimethylphenol	EPA 8270E_6_(6/18)	1
2,4-Dinitrophenol	EPA 8270E_6_(6/18)	1
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270E_6_(6/18)	1
2,6-Dichlorophenol	EPA 8270E_6_(6/18)	
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270E_6_(6/18)	1
2-Benzyl-4-chlorophenol	EPA 8270E_6_(6/18)	
2-Chloronaphthalene	EPA 8270E_6_(6/18)	1
2-Chlorophenol	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
2-Methoxyphenol (Guaiacol)	EPA 8270E_6_(6/18)	
2-Methylnaphthalene	EPA 8270E_6_(6/18)	1
2-Methylphenol (o-Cresol)	EPA 8270E_6_(6/18)	1
2-Nitroaniline	EPA 8270E_6_(6/18)	1
2-Nitrophenol	EPA 8270E_6_(6/18)	1
3,3'-Dichlorobenzidine	EPA 8270E_6_(6/18)	1
3,4,5-Trichloroguaiacol	EPA 8270E_6_(6/18)	
3,4,6-Trichloroguaiacol	EPA 8270E_6_(6/18)	
3,4-Dichloroguaiacol	EPA 8270E_6_(6/18)	
3-Methylcholanthrene	EPA 8270E_6_(6/18)	
3-Methylphenol (m-Cresol)	EPA 8270E_6_(6/18)	
3-Nitroaniline	EPA 8270E_6_(6/18)	1
4,5,6-Trichloroguaiacol	EPA 8270E_6_(6/18)	
4,5-Dichloroguaiacol	EPA 8270E_6_(6/18)	
4,6-Dichloroguaiacol	EPA 8270E_6_(6/18)	
4,6-Dinitro-2-methylphenol	EPA 8270E_6_(6/18)	
4-Bromophenyl phenyl ether (BDE-3)	EPA 8270E_6_(6/18)	1
4-Chloro-3-methylphenol	EPA 8270E_6_(6/18)	1
4-Chloroaniline	EPA 8270E_6_(6/18)	1
4-Chloroguaiacol	EPA 8270E_6_(6/18)	
4-Chlorophenol	EPA 8270E_6_(6/18)	
4-Methylphenol (p-Cresol)	EPA 8270E_6_(6/18)	1
4-Nitroaniline	EPA 8270E_6_(6/18)	1
4-Nitrophenol	EPA 8270E_6_(6/18)	1
7,12-Dimethylbenz(a) anthracene	EPA 8270E_6_(6/18)	
Acenaphthene	EPA 8270E_6_(6/18)	1
Acenaphthylene	EPA 8270E_6_(6/18)	1
Acetophenone	EPA 8270E_6_(6/18)	1
Acetophenone	EPA 8270E_6_(6/18)	1
alpha-Terpineol	EPA 8270E_6_(6/18)	1
Aniline	EPA 8270E_6_(6/18)	1
Anthracene	EPA 8270E_6_(6/18)	1
Benzidine	EPA 8270E_6_(6/18)	1
Benzo(a)anthracene	EPA 8270E_6_(6/18)	1
Benzo(a)pyrene	EPA 8270E_6_(6/18)	1
Benzo(g,h,i)perylene	EPA 8270E_6_(6/18)	1
Benzo(k)fluoranthene	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Benzo[b]fluoranthene	EPA 8270E_6_(6/18)	1
Benzoic acid	EPA 8270E_6_(6/18)	1
Benzyl alcohol	EPA 8270E_6_(6/18)	1
Biphenyl	EPA 8270E_6_(6/18)	1
bis(2-Chloroethoxy)methane	EPA 8270E_6_(6/18)	1
bis(2-Chloroethyl) ether	EPA 8270E_6_(6/18)	1
bis(2-Chloroisopropyl) ether	EPA 8270E_6_(6/18)	
Bolstar (Sulprofos)	EPA 8270E_6_(6/18)	1
Butyl benzyl phthalate	EPA 8270E_6_(6/18)	1
Butyl diphenyl Phosphate	EPA 8270E_6_(6/18)	1
Butylated Hydroxytoluene	EPA 8270E_6_(6/18)	1
Butyl-tin Species	EPA 8270E_6_(6/18)	
Carbaryl (Sevin)	EPA 8270E_6_(6/18)	
Carbazole	EPA 8270E_6_(6/18)	1
Chlorfenvinphos	EPA 8270E_6_(6/18)	1
Chlorpyrifos	EPA 8270E_6_(6/18)	1
Chrysene	EPA 8270E_6_(6/18)	1
Coumaphos	EPA 8270E_6_(6/18)	1
Crotoxyphos	EPA 8270E_6_(6/18)	1
Demeton-s	EPA 8270E_6_(6/18)	1
Di(2-ethylhexyl)phthalate	EPA 8270E_6_(6/18)	1
Diazinon	EPA 8270E_6_(6/18)	1
Dibenz(a,h) acridine	EPA 8270E_6_(6/18)	
Dibenz(a,h) anthracene	EPA 8270E_6_(6/18)	1
Dibenz(a,j) acridine	EPA 8270E_6_(6/18)	
Dibenzo(a,e) pyrene	EPA 8270E_6_(6/18)	
Dibenzofuran	EPA 8270E_6_(6/18)	1
Dibutyl phenyl Phospahate	EPA 8270E_6_(6/18)	1
Dicrotophos	EPA 8270E_6_(6/18)	1
Diethyl phthalate	EPA 8270E_6_(6/18)	1
Dimethyl phthalate	EPA 8270E_6_(6/18)	1
Di-n-butyl phthalate	EPA 8270E_6_(6/18)	1
Di-n-octyl phthalate	EPA 8270E_6_(6/18)	1
Diphenyl ether	EPA 8270E_6_(6/18)	
Disulfoton	EPA 8270E_6_(6/18)	1
EPN	EPA 8270E_6_(6/18)	1
Ethion	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Ethoprop	EPA 8270E_6_(6/18)	1
Fensulfothion	EPA 8270E_6_(6/18)	1
Fenthion	EPA 8270E_6_(6/18)	1
Fluoranthene	EPA 8270E_6_(6/18)	1
Fluorene	EPA 8270E_6_(6/18)	1
Hexachlorobenzene	EPA 8270E_6_(6/18)	1
Hexachlorobutadiene	EPA 8270E_6_(6/18)	1
Hexachlorocyclopentadiene	EPA 8270E_6_(6/18)	1
Hexachloroethane	EPA 8270E_6_(6/18)	1
Indeno(1,2,3-cd) pyrene	EPA 8270E_6_(6/18)	1
Isophorone	EPA 8270E_6_(6/18)	1
Malathion	EPA 8270E_6_(6/18)	1
Merphos	EPA 8270E_6_(6/18)	1
Methyl parathion (Parathion, methyl)	EPA 8270E_6_(6/18)	1
Mevinphos	EPA 8270E_6_(6/18)	1
Mirex	EPA 8270E_6_(6/18)	
Naled	EPA 8270E_6_(6/18)	1
Naphthalene	EPA 8270E_6_(6/18)	1
n-Hexadecane	EPA 8270E_6_(6/18)	
Nicotine	EPA 8270E_6_(6/18)	
Nitrobenzene	EPA 8270E_6_(6/18)	1
N-Nitrosodiethylamine	EPA 8270E_6_(6/18)	
N-Nitrosodimethylamine	EPA 8270E_6_(6/18)	1
N-Nitroso-di-n-butylamine	EPA 8270E_6_(6/18)	
N-Nitroso-di-n-propylamine	EPA 8270E_6_(6/18)	1
N-Nitrosodiphenylamine	EPA 8270E_6_(6/18)	1
n-Tetradecane	EPA 8270E_6_(6/18)	
o,o,o-Triethyl phosphorothioate	EPA 8270E_6_(6/18)	
Parathion, ethyl	EPA 8270E_6_(6/18)	1
p-Benzoquinone	EPA 8270E_6_(6/18)	
Pentachlorobenzene	EPA 8270E_6_(6/18)	
Pentachlorophenol	EPA 8270E_6_(6/18)	1
Pentachlorophenol	EPA 8270E_6_(6/18)	1
Phenanthrene	EPA 8270E_6_(6/18)	1
Phenol	EPA 8270E_6_(6/18)	1
Phorate	EPA 8270E_6_(6/18)	1
Pyrene	EPA 8270E_6_(6/18)	1

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Pyridine	EPA 8270E_6_(6/18)	1
Retene	EPA 8270E_6_(6/18)	1
Ronnel	EPA 8270E_6_(6/18)	1
Sulfotepp	EPA 8270E_6_(6/18)	1
Tetrachloroguaiacol	EPA 8270E_6_(6/18)	
Tetrachlorvinphos (Stirophos, Gardona)	EPA 8270E_6_(6/18)	1
Tokuthion (Prothiophos)	EPA 8270E_6_(6/18)	1
Tributyl phosphate	EPA 8270E_6_(6/18)	1
Trichloronate	EPA 8270E_6_(6/18)	1
Trimethyl phosphate	EPA 8270E_6_(6/18)	
Triphenyl phosphate	EPA 8270E_6_(6/18)	1
1-Methylnaphthalene	EPA 8270E_6_(6/18) SIM	1,2
Acenaphthene	EPA 8270E_6_(6/18) SIM	1,2
Acenaphthylene	EPA 8270E_6_(6/18) SIM	1,2
Anthracene	EPA 8270E_6_(6/18) SIM	1,2
Azinphos-ethyl (Ethyl guthion)	EPA 8270E_6_(6/18) SIM	2
Benzo(a)anthracene	EPA 8270E_6_(6/18) SIM	1,2
Benzo(a)pyrene	EPA 8270E_6_(6/18) SIM	1,2
Benzo(g,h,i)perylene	EPA 8270E_6_(6/18) SIM	1,2
Benzo(j)fluoranthene	EPA 8270E_6_(6/18) SIM	1,2
Benzo(k)fluoranthene	EPA 8270E_6_(6/18) SIM	1,2
Benzo[b]fluoranthene	EPA 8270E_6_(6/18) SIM	1,2
Chrysene	EPA 8270E_6_(6/18) SIM	1,2
Demeton	EPA 8270E_6_(6/18) SIM	2
Demeton-o	EPA 8270E_6_(6/18) SIM	2
Dibenz(a,h) anthracene	EPA 8270E_6_(6/18) SIM	1,2
Dichlorofenthion	EPA 8270E_6_(6/18) SIM	2
Dichlorovos (DDVP, Dichlorvos)	EPA 8270E_6_(6/18) SIM	2
Dioxathion	EPA 8270E_6_(6/18) SIM	2
Famphur	EPA 8270E_6_(6/18) SIM	2
Fenitrothion	EPA 8270E_6_(6/18) SIM	2
Fluoranthene	EPA 8270E_6_(6/18) SIM	1,2
Fluorene	EPA 8270E_6_(6/18) SIM	1,2
Indeno(1,2,3-cd) pyrene	EPA 8270E_6_(6/18) SIM	1,2
Naphthalene	EPA 8270E_6_(6/18) SIM	1,2
Parathion	EPA 8270E_6_(6/18) SIM	2
Phenanthrene	EPA 8270E_6_(6/18) SIM	1,2

Matrix/Analyte	Method	Notes
Solid and Chemical Materials		
Pyrene	EPA 8270E_6_(6/18) SIM	1,2
Tri-o-cresylphosphate (TOCP)	EPA 8270E_6_(6/18) SIM	2
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	EPA 8290A_1_(2/07)	1
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	EPA 8290A_1_(2/07)	1
1,2,3,4,6,7,8-Hpcdd	EPA 8290A_1_(2/07)	1
1,2,3,4,6,7,8-Hpcdf	EPA 8290A_1_(2/07)	1
1,2,3,4,7,8,9-Hpcdf	EPA 8290A_1_(2/07)	1
1,2,3,4,7,8-Hxcdd	EPA 8290A_1_(2/07)	1
1,2,3,4,7,8-Hxcdf	EPA 8290A_1_(2/07)	1
1,2,3,6,7,8-Hxcdd	EPA 8290A_1_(2/07)	1
1,2,3,6,7,8-Hxcdf	EPA 8290A_1_(2/07)	1
1,2,3,7,8,9-Hxcdd	EPA 8290A_1_(2/07)	1
1,2,3,7,8,9-Hxcdf	EPA 8290A_1_(2/07)	1
1,2,3,7,8-Pecdd	EPA 8290A_1_(2/07)	1
1,2,3,7,8-Pecdf	EPA 8290A_1_(2/07)	1
2,3,4,6,7,8-Hxcdf	EPA 8290A_1_(2/07)	1
2,3,4,7,8-Pecdf	EPA 8290A_1_(2/07)	1
2,3,7,8-TCDF	EPA 8290A_1_(2/07)	1
Hpcdd, total	EPA 8290A_1_(2/07)	1
Hpcdf, total	EPA 8290A_1_(2/07)	1
Hxcdd, total	EPA 8290A_1_(2/07)	1
Hxcdf, total	EPA 8290A_1_(2/07)	1
Pecdd, total	EPA 8290A_1_(2/07)	1
Pecdf, total	EPA 8290A_1_(2/07)	1
TCDD, total	EPA 8290A_1_(2/07)	1
TCDF, total	EPA 8290A_1_(2/07)	1

Matrix/Analyte	Method	Notes

Accredited Parameter Note Detail

(1) Recognition of Oregon NELAP accreditation. (2) GC-MS Selective Ion Monitoring (SIM). (3) Washington Department of Ecology Analytical Methods for Petroleum Hydrocarbons, Publication Number ECY 97-602, June 1997. (4) ARI SOP for Water Soluble Non-halogenated Volatile and Semivolatile Organic Compounds, including glycols. (5) Provisional accreditation pending submittal of additional, acceptable Proficiency Testing (PT) results (WAC 173-50-110). (6) Includes capability for low levels in aqueous samples using a modified hexane extraction. (7) Includes Low-Level Pesticides by ARI SOP 710S. (8) Approved for compliance testing only when holding time is met. (9) Includes gasoline analysis by GCMS EPA 8260C. (11) Accrediltation is limited to liquid matrix only. (12) Method not approved for NPDES testing. (13) Provisional accreditation pending submission of SOP and data package listing 608.3. (14) Provisional accreditation pending a corrective action report.

Rebecca Wood

Authentication Signature
Rebecca Wood, Lab Accreditation Unit Supervisor

08/04/2020

Date