WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

NATIONAL GROUNDWATER MONITORING NETWORK PROJECT FINAL REPORT

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1.0 PROJECT OVERVIEW

The Wyoming Department of Environmental Quality, Water Quality Division (WDEQ/WQD) applied for and received a grant award to become a new data provider for the United States Geologic Survey (USGS) National Groundwater Monitoring Network (NGWMN). The performance period for the project was from August 1, 2017 through December 31, 2019. This project included selection of wells sampled as part of the Ambient Groundwater Monitoring Program (AGWMP) to be incorporated into a state groundwater monitoring network and development of web services to share water quality data from the wells to the NGWMN Portal. The purpose of the state groundwater monitoring network is an extension of the AGWMP to develop long term monitoring data sets necessary to establish background conditions and/or document changes in water quality in the state's high priority aquifers. The state groundwater quality monitoring network was proposed in the project to be comprised of an initial selection of fifty (50) to one-hundred (100) private domestic and livestock wells previously sampled as part of the AGWMP and located within Wyoming's priority aquifers. The state groundwater monitoring network was proposed as a surveillance monitoring network as defined in the National Framework for Groundwater Monitoring in the United States (Framework Document) prepared by the Subcommittee on Groundwater (SGW) of the Advisory Committee on Water Information. A surveillance monitoring network includes monitoring of groundwater quality at a minimum frequency of once every five (5) to ten (10) years.

The creation of the AGWMP followed the development of the Wyoming Groundwater Vulnerability Assessment Project prepared for the WDEQ/WQD by the Wyoming Water Resources Center of the University of Wyoming and Wyoming State Geologic Survey with assistance from the University of Wyoming Spatial Data and Visualization Center, WDEQ/WQD, Wyoming State Engineer's Office (WSEO), and the United States Environmental Protection Agency in the late 1990s. One of the primary work products of this project was the development of aquifer sensitivity maps for the State of Wyoming. The AGWMP was subsequently launched to collect groundwater samples from private wells permitted by the WSEO within the state's priority aquifers. Aquifer prioritization was based on the aquifer's importance as a drinking water source, susceptibility to pollution, current use of the aquifer, land use (e.g. agricultural land, urban land, mining, oil and gas fields, and known contaminant sources), and aquifer sensitivity (e.g. soil type, vadose zone properties, land surface slope, hydrogeologic setting, aquifer recharge, and depth to groundwater.

The overarching goal of the AGWMP is to collect water quality samples from 20-30 wells within each of the 33 groundwater priority areas. Groundwater monitoring relies heavily upon the use of existing landowner wells to minimize the cost of the sampling program, as well as to provide water quality data to participating landowners. To date, priority areas have been sampled in Uinta, Sublette, Sweetwater, Carbon, Albany, Laramie, Goshen, Platte, Converse, Niobrara, Crook, Campbell, Sheridan, Johnson, Weston, Natrona, Big Horn, Washakie, and Hot Springs counties. Additional sampling is planned in priority areas of other counties including Teton, Park, Fremont, and Lincoln counties. The well selection process of the NGWMN project is an extension of the AGWMP and provides the starting place for the creation of a state groundwater monitoring network.

2.0 WELL SELECTION AND NETWORK CLASSIFICATION

Two-hundred ninety-one (291) wells sampled as part of the AGWMP were evaluated for potential inclusion in a state groundwater monitoring network. All of these wells are located in moderate to high priority aquifers, and the wells were evaluated based on the well having the minimum criteria outlined in the Framework Document. Well construction records were used as the primary basis for the network suitability screening. Based on this evaluation, one-hundred sixteen (116) wells were selected as candidates for inclusion in a state groundwater monitoring network. These wells have construction records demonstrating that seals are present to prevent contamination from surface run-off and that any overlying aquifers are isolated from one-another. From the one-hundred sixteen (116) wells, a subset of fifty-three (53) wells were included in the final well selection as the best candidates. These wells were selected based on their spatial distribution within Wyoming's priority aquifers to achieve the best coverage. Specifically, wells were selected in or down-gradient from the portions of the priority aquifers with the greatest sensitivity to contamination, and where available, wells were selected up- and/or down- gradient relative to regional groundwater flow patterns.

Table 1 provides a summary of the number of wells selected for each principle aquifer system. The attached map depicts the location of selected wells relative to the priority aquifer layer developed as part of the Wyoming Groundwater Vulnerability Assessment Project.

Table 1: Well Summary

National Aquifer Name	Local Aquifer Name(s)	Number of Wells	Well Depth Range
Alluvial	Alluvial	5	36 to 78 feet
High Plains	Ogallala Formation, Arikaree Formation, White River Formation, Chadron Formation, Brule Formation	12	100 to 480 feet
Lower Tertiary	Wasatch Formation, Fort Union Formation	14	115 to 421 feet
Colorado Plateau	Mesa Verde Formation, Browns Park Formation, Wasatch Formation	9	65 to 420 feet
Upper and Lower Cretaceous	Lance Formation, Sundance Formation	5	60 to 360 feet
Paleozoic	Casper Formation	3	90 to 300 feet
Other	Pre-cambrian	5	140 to 300 feet

The selected wells are classified as a "surveillance" monitoring network with a minimum sampling frequency of once every five (5) to ten (10) years. The minimum sampling frequency was expanded from a minimum of five (5) to a minimum frequency of once every ten (10) years by the SGW in 2019. Surveillance monitoring provides data to assess long-term natural trends or the effect of slowly changing anthropogenic activities, and can be thought of as a periodic "census" of

groundwater quality within the state's priority aquifers. (SGW 2013) To date the selected wells have only been sampled by the WDEQ/WQD one (1) time. As a result, the wells are all currently listed in the "baseline" subnetwork until sufficient water quality data is available to assign them as part of background, suspected changes, or documented changes subnetworks.

3.0 FIELD TECHNIQUES

Representative well water samples are obtained from wells by purging groundwater until select field parameters have stabilized. Field parameters measured during purging include: temperature, pH, oxidation-reduction potential, specific conductance, dissolved oxygen, and turbidity. Field parameters are measured at least every five (5) minutes. Collection of parameters is generally conducted by utilizing a flow through cell equipped with the applicable sensors.

A minimum of six (6) parameter measurements are collected. If field parameters have not stabilized between the last three (3) readings, purging and parameter measurement continues until stabilization has been achieved. Stabilization can be demonstrated by a variance of no more than +/- 10% for temperature, turbidity (if >10 Nephelometric Turbidity unit (NTU)), dissolved oxygen (if > 0.5 milligrams per liter (mg/L)); +/- 3% specific conductance; +/- 10 millivolts (mV) for oxidation reduction potential; and +/-0.2 standard units for pH.

To measure the purge rate of the well, a 5-gallon bucket and a timer capable of measuring time to seconds is used. Flow rate is estimated by the recording the time it takes to fill a 5-gallon bucket, and converting to a gallons per minute (gpm) reading.

Each non-disposable (not for single-use) piece of equipment used in conjunction with the sampling activities and intended for re-use is decontaminated. A detailed description of field techniques is described in the attached Sampling and Analysis Plan (SAP).

4.0 DATA QUALITY AND QUALITY ASSURANCE PROCESES

The following summarizes the data review used as part of the WDEQ/WQD Quality Assurance process for data collected as part of the AGWMP and ultimately shared with the NGWMN portal.

Data review is conducted in-house to ensure that data has been recorded, transmitted, and processed correctly (as prescribed in the SAP) and includes the following activities: checking for data entry, transcription, calculation and reduction, and transformation errors. Activities also include generating a list of all samples collected (regular samples, blanks, duplicates) as well as the sample information (shipping dates, verification of sample receipt, verification that proper preservatives were used and holding times were met) to ensure that the samples/parameters planned are the same number and type as those actually collected. Data review may occur on a frequent basis for ongoing data collection programs or may only occur a few times during a shorter data collection project.

Laboratory results are initially reviewed and reported by the analyzing laboratory. The reviewed data package is then submitted by the laboratory to the Project Manager, Supervisor, and/or the Quality Assurance Officer (QAO). The Project Manager and /or QAO conducts a review of the lab

data. Some (not all) of these checks include making sure Sample IDs are correct, reviewing laboratory comments, comparing total to dissolved values, checking for the presence of expected detection/quantitation limits based on the analytical method, reviewing non-detect data, checking to see if/when dilutions were performed, making sure holding times were met, making sure all analyses for a sample are complete, looking for duplicate records or incorrect dates, etc. The Project Manager or QAO follows up with the laboratory Quality Assurance (QA) officer or individual analysts if any missing or suspect data is identified. Laboratory results passing this initial level of scrutiny are then uploaded for storage in the ArcSDE database and the raw data files are saved on the WDEQ/WQD Groundwater Section server indefinitely.

Field personnel verify quality of field data (electronic and hard copy). Field data for the entire trip is reviewed by a member of the field team both during and after the trip. This review includes the following: checking field documentation and electronic field data for data entry, transcription, calculation and reduction, and transformation errors as well as completeness, proper format, and initial filing into the proper location. Next, the field documentation may be sent to the QAO for review, or it may be submitted at the same time as the final report. The QAO will perform a secondary check of the above-listed items, follow up on questionable data points, and provide a Quality Assurance/Quality Control (QA/QC) report.

5.0 MINIMUM DATA ELEMENTS

Table 2 summarizes a list of minimum data elements for the project well selection. The minimum data elements are listed in the Framework Document.

Table 2: Data Elements

Field	Description	Recorded?
Site/Well Information		
Site Name	Unique identifier for each well	Yes
Grid Reference	Latitude/Longitude	Yes
Public Land Survey System (PLSS)	Section, Township, Range, Quarter-Quarter	Yes
Contact Information	Name, address, telephone number for each well.	Yes
Operating Interval	Screened or open interval of the well.	Yes
Total Depth	Total depth of the well.	Yes
Fluid Level	Not recorded as part of the water quality network.	No
Pump Status	Recorded if known.	Yes
Pump Status Time	Recorded if known.	Yes
Well Construction and Lithology	Records obtained from WSEO Records.	Yes
Measuring Point	Not recorded since fluid levels are not recorded for the water quality network.	No
Measuring Point Elevation	Not recorded since fluid levels are not recorded for the water quality network.	No
Special Instructions	Recorded if applicable.	Yes
Sampling Information		
Sampling Procedure	Procedure used to collect the sample (described in	Yes

	SAP).	
Weather	Record of weather conditions at the time the sample was collected.	Yes
Name of Sampler	Name of the field staff who collected the sample.	Yes
Affiliation of Sampler	Agency of the field staff who collect the sample.	Yes
Purge Method	Method used to collect the sample.	Yes
Purge Volume	Method used to purge water from the well prior to sampling.	Yes
Sample Appearance	Description of color, turbidity, or odors observed for the sample.	Yes
Preservation	Record of the type and amount of preservative used for sample.	Yes
Analyses	List of analyses for the sample.	Yes
Method	Laboratory method used for sample analyses.	Yes
Transfer Date	Chain of Custody documentation.	Yes

The only minimum data elements that are not recorded for selected wells are the fluid level, measuring point, and measuring point elevation. These data elements were not recorded as part of well sampling for the AGWMP. These data elements are not anticipated to be recorded for selected wells in the groundwater quality monitoring network since the majority of the selected wells are private domestic wells, and the WDEQ/WQD does not break any well head sanitary seals or lower monitoring equipment into the wells which could damage or become stuck in the well. The minimum data elements for well information are provided through the NGWMN Portal well registry and well construction web services. The minimum data elements for samples are provided through water quality web services.

6.0 WEB SERVICES DEVELOPMENT

Web services were developed using ArcGIS by creating Web Map Services (WMS) and Web Feature Services (WFS) in ArcMap. The ArcMap software was used to create the web service and the XML code for loading into NGWMN portal. This method was used to create web services for serving well summary, well construction, lithology, and water quality data to the NGWMN portal. The data for the well summary, well construction, lithology, and water quality tables is stored in an ArcSDE database. A detailed step-by-step procedure used for the web services development is included as an attachment to this report.

7.0 ANALYTE LIST AND LABORATORY INFORMATION

The attached SAP outlines the routine constituents, laboratory methods, containers, preservatives, and holding times used for the AGWMP. Contract laboratory analysis for the AMGWP is currently awarded to Pace Analytical in Lenexa, Kansas. Bacteria samples are analyzed at Energy Laboratories in Casper, Wyoming to meet sample holding times. Samples collected between 2009 and 2015 were analyzed at the United States Environmental Protection Agency (USEPA) Region 8 Laboratory in Lakewood, Colorado. The Pace Analytical Quality Assurance Project Plan is attached to this report. QA/QC reports for other contract laboratory analysis are included with each final laboratory report.

8.0 REFERENCE

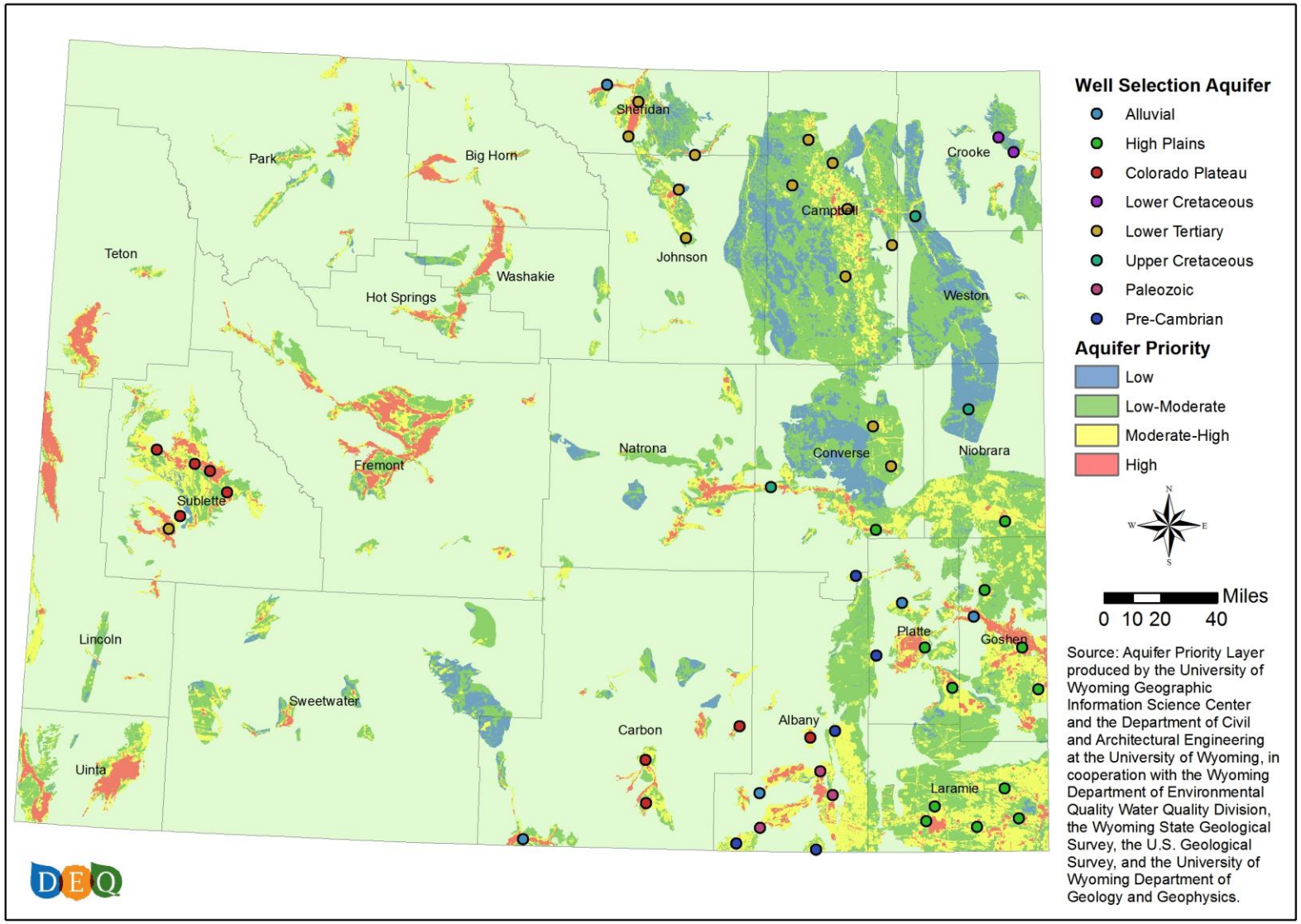
"A National Framework for Ground-Water Monitoring in the United States". Subcommittee on Ground Water of the Advisory Committee on Water Information. Revised July 2013.

9.0 ATTACHMENTS

1. Wyoming National Groundwater Monitoring Network Project: Well Selection Map
2. Ambient Groundwater Monitoring Program Sampling and Analysis Plan, Revised September 18, 2018.
3. Step-by-step Web-services Procedure
4. Pace Analytical Quality Assurance Project Plan

Attachment #1

Wyoming National Groundwater Monitoring Network Project: Well Selection Map



Attachment #2

WATER QUALITY DIVISION

AMBIENT GROUNDWATER PROGRAM

SAMPLING AND ANALYSIS PLAN

Groundwater Sampling and Analysis

October 23, 2017
Revised September 18, 2018

WYOMING DEPARTMENT OF
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1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) has been prepared by the Wyoming Department of Environmental Quality (WDEQ), Water Quality Division (WQD) to establish proper groundwater sampling requirements and procedures.

2.0 BACKGROUND

The WDEQ has been called upon to perform groundwater sampling activities in northeastern Wyoming in the Moorcroft area. This SAP is intended as a field guide for personnel who will be conducting groundwater sampling. It is the WDEQ's goal that all groundwater sampling activities conducted by WDEQ personnel be conducted according to the highest professional and analytical standards, in order that all groundwater quality data collected is of the highest quality.

3.0 STANDARD OPERATING PROCEDURES

This section describes the standard operating procedures (SOP) that will be followed during the collection of formation water samples. This section also presents the methodology for obtaining access to field sampling sites, sampling parameters, health and safety procedures, identified contract laboratories, field sampling procedures, sample analysis procedures, equipment decontamination procedures, and chain of custody protocols. In addition, this section contains template forms for recording site access permission, field sampling activities, and chain of custody.

3.1 Prior to Field Sampling

Prior to arriving at the field site, WDEQ personnel will determine who owns the field site location, and will obtain permission to access the site for the purpose of collecting field samples and other scientific data (photographs, etc.), and shall follow the procedures outlined in the document "Guidance for Accessing Private Property' (Attachment A). The form entitled "Consent for Accessing Private Property", (Appendix B) shall be used to solicit permission to access field sites and collect scientific data. If access is obtained verbally via telephone or electronically via e-mail, WDEQ personnel will obtain written permission on-site using the "Consent for Accessing Private Property" form (Appendix B) prior to conducting field sampling activities.

3.2 Laboratories

The preferred laboratory for analysis of samples collected by WDEQ personnel is the Pace Analytical located at 9608 Loiret Boulevard, Lenexa, Kansas (66219). Energy Laboratory in Casper will be used for bacteria analyses due to short hold times.

3.3 Health and Safety Procedures

WDEQ personnel shall perform all sampling activities in a safe and professional manner. Safety equipment required for sampling activities include latex or nitrile gloves, appropriate footwear, safety glasses, hearing protection and/or hard hats if deemed necessary, and clothing appropriate for the weather. WDEQ personnel **shall not** wear any of the following when performing sampling activities:

(1) sandals or other open-toed shoes,
(2) sleeveless shirts,
(3) excessively loose or flowing items that may interfere with sampling activities, (for example, long scarves or long tunic-type shirts),
(4) shorts,
(5) slick-soled shoes,
(6) any clothing that has the potential to interfere with sampling work (for example, excessively large clothing or clothing that sheds excessive fibers)
(7) WDEQ personnel with long hair shall secure their hair in a manner that prevents it from interfering with sample activities.

Latex and/or nitrile gloves shall be discarded once sampling activities have been conducted at each well, and a new pair of gloves used to sample each well, or if the gloves become excessively worn, torn, or soiled. Gloves shall not be re-used at a different well.

Clothing and/or safety items shall be cleaned/replaced prior to further sampling activities if they become soiled to the point that sampling activities could be impacted by the soiled items.

WDEQ personnel shall not eat or drink while performing sampling activities. Gloves and other soiled items shall be removed, and field personnel shall move away from the sample site prior to eating and/or drinking in the field. WDEQ personnel shall not smoke while performing sampling activities. Use of alcoholic beverages and/or illicit substances is prohibited while conducting sampling activities or using state vehicles.

3.4 Well Sampling Procedures

3.4.a Arriving at the Well Site

WDEQ personnel shall collect the well water samples. Upon arriving at the well site, WDEQ personnel shall, if requested to do so, make contact with the well owner. If site access was given verbally or electronically, WDEQ personnel shall obtain written consent from the well owner using the "Consent for Accessing Private Property" form (Appendix B) to perform sampling activities. Under no circumstances shall sampling activities occur without written well owner consent. WDEQ personnel shall attempt to obtain the following information from the well owner, if not previously obtained, and record it on the Field Data Form (Attachment C) prior to well sampling.

(1) verify the well name,
(2) well owner's name and address
(3) State Engineer's Office well permit number, if known,
(4) age of the well,
(5) depth of the well,
(6) well screening and/or perforation intervals,
(7) whether or not the location designated for sampling is prior to any water treatment (for example, water softening), and if the location is not prior to any water treatment, ask if there is a different location that could be sampled that is prior to any water treatment,
(9) any information available regarding well maintenance practices.

3.4.b Collecting a Representative Well Sample

Prior to collecting the well water samples, WDEQ personnel shall connect well sampling equipment to the selected well tap or hydrant. A representative well water sample shall be obtained purging groundwater until select field parameters have stabilized. Field parameters measured during purging shall include at a minimum temperature, pH, oxidation-reduction potential, specific conductance, dissolved oxygen, and turbidity. Field parameters should be measured every 5 minutes. Collection of parameters is most easily conducted by utilizing a flow through cell equipped with the applicable sensors.

A minimum of six (6) parameter measurements shall be collected. If field parameters have not stabilized between the last three readings, purging and parameter measurement shall continue until stabilization has been achieved. Stabilization can be demonstrated by a variance of no more than +/- 10% for temperature, turbidity (if >10 NTU), dissolved oxygen (if > 0.5 mg/L); +/- 3% specific conductance; +/- 10 mV for oxidation reduction potential; and +/-0.2 standard units for pH.

To measure the purge rate of the well, a 5-gallon bucket and a timer capable of measuring time to seconds should be used. Flow rate is estimated by the recording the time it takes to fill a 5-gallon bucket, and converting to a gallons per minute (gpm) reading.

FIELD PARAMETERS

PARAMETER	**MEASUREMENT SENSITIVITY**
Temperature	0.1 degrees Celsius or Fahrenheit
Turbidity	0.1 NTU
Dissolved Oxygen	0.01 mg/L
Specific Conductance	1 µS/cm or 0.01 mS/cm
pH	0.1 s.u.
Oxidation-reduction Potential	1 mV

3.4.c Sampling Low-Yield Wells

In low-yield wells when low-flow sampling methods are used, the well may be pumped at a flow rate comparable to the recharge rate (ideally < 0.30 ft of stabilized drawdown) and then sampled after at least one casing volume has been removed and field parameters have stabilized. However, in very low-yield wells that are unable to sustain even low-flow sampling rates (i.e. excessive drawdown), a single casing volume shall be removed, and field parameters are not required to stabilize before sampling. Turbidity values of 20 NTU or less may not be achievable in low-yield wells, and samples shall be collected as soon as an adequate volume of water has recovered to allow collection of samples.

3.4.c Field Data Collected

WDEQ personnel shall also utilize the Field Data Form (Attachment C) to record well data, field observations, and the results of all constituents identified as field parameters in Table 1. All field parameters will be recorded on the field data form (Attachment C) and a copy of the Field Data Form(s) shall be transmitted with the Chain of Custody (COC) form (Attachment D) at the time of sample submittal to the laboratory. The Field Data Form shall include the following:

(1) sample date, place, and time,
(2) Sampler's name and/or initials,
(3) well name and/or reference number,
(4) well owner's name,
(5) Global positioning system (GPS) location,
(6) Device used to collect GPS information,
(7) results of any field measurements or analyses,
(8) sample ID number(s)
(9) Well purging/parameter stabilization procedure used to obtain a representative well water sample,
(10) field observations - any remarks that might be useful (for example, if the well water has an unusual color or odor, or if a specialized fitting was required to collect a sample).
(11) type of equipment used to collect field sample measurements,
(12) date and result of last calibration for field sampling equipment,
(13) sample collection techniques (for example, preservative used, was the sample filtered)
(14) deviation from any of the techniques described in this SAP and the reason for the deviation,
(15) any unusual situations or difficulties found or encountered during sampling,
(16) site photographs, including photograph ID information and observations (for example, view direction for photograph, any items of note in the photograph, site ID for photograph).

3.5 Sampling Schedule, Constituents, and Methods

Table 1 provides a list of sample constituents, and describes associated analytical methods for each constituent, the laboratory selected to perform the analysis for each constituent, preferred sample containers, preferred sample preservatives, sample holding times, and sample preservation temperatures.

Table 1 – Routine Constituents, Laboratory Methods, Containers, Preservatives, and Holding Times

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
Field Parameters					
Dissolved Oxygen	Glass, 300 mls	NA	NA	Optical luminescence (ROX™)	Field Measurement
Oxidation-Reduction Potential	NA	NA	NA	AG/AgCl reference electrodes	Field Measurement
pH	NA	NA	NA	Glass sensing and AG/AgCl reference electrodes	Field Measurement
Salinity	NA	NA	NA	NA (Calculation)	Field Measurement
Specific Conductance	NA	NA	NA	Four electrode cell	Field Measurement

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
Temperature	NA	NA	NA	Thermistor	Field Measurement
Turbidity	NA	NA	NA	Optical	Field Measurement
Major Cations					
Calcium, Magnesium, Potassium, Sodium	Plastic, 250 mls	Nitric Acid	6 months	SW846 6010B	Field Filtered
Major Anions					
Chloride, Sulfate, Fluoride	Plastic, 250 mls	Ice to ≤6°C	28 days	EPA 300.0	Field Filtered
Nitrogen, Ammonia	Plastic, 500 mls	pH<2 H2SO4, ≤6°C	28 days	EPA 350.1	Field Filtered
Nitrogen, Ammonia	Plastic, 500 mls	pH<2 H2SO4, ≤6°C	28 days	EPA 350.1	Not Filtered
Nitrogen, Nitrate	Plastic, 500 mls	≤6°C filtered in lab	48 hours	EPA 353.2	Lab Filtered
Nitrogen, Nitrite	Plastic, 500 mls	≤6°C filtered in lab	48 hours	EPA 353.2	Lab Filtered
Nitrogen, Total Kjeldahl (TKN) Dissolved	Plastic, 500 mls	pH<2 H2SO4, ≤6°C"	28 days	EPA 351.2	Lab Filtered
Phosphorus, Ortho		Ice to ≤6°C		EPA 365.2	Field Filtered
Total Organic Carbon		pH<2 H2SO4 or HCl, ≤6°C		SM 5310C	Not Filtered
Dissolved Organic Carbon				SM 5310	
Total Dissolved Solids	Plastic, 500 mls	Ice to 4° C	7 days	SM 2450C	Not Filtered
Alkalinity-Bicarbonate, Alkalinity-Carbonate, Alkalinity-Hydroxide, Alkalinity-Total CaCO3	Plastic, 500 mls	Ice to 4° C	14 days	SM 2320B	Not Filtered
Metals - Total					

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Lithium Manganese Molybdenum Nickel Selenium Silver Silica Strontium Thallium Vanadium Zinc	Plastic, 500 mls	HNO_3 to pH < 2	6 months	EPA 200.7/200.8 or SW 846 6010C or SW 846 6020	Not Filtered
Metals - Dissolved					
Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Lithium Manganese Molybdenum Nickel Selenium Silver Silica Strontium Thallium Vanadium Zinc	Plastic, 500 mls	HNO3 to pH < 2	6 months	EPA 200.7/200.8 or SW 846 6010C or SW 846 6020	Field Filter
VOCs					

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene 1,1-Dichloropropene 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane 1,2-Dibromoethane (EDB) 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,3-Dimethyl adamantane 1,4-Dichlorobenzene 2,2-Dichloropropane 2-Butanone 2-Chlorotoluene 2-Hexanone 4-Chlorotoluene		pH<2 HCI; ≤6°C		pH<2 HCI; ≤6°C	

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
4-Methyl-2-pentanone Acetone Acrylonitrile Adamantane Allyl chloride Benzene Bromobenzene Bromochloromethane Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Dibromomethane Dichlorodifluoromethane Ethyl Ether Ethylbenzene GRO Hexachlorobutadiene Iodomethane Isopropylbenzene m,p-Xylene Methacrylonitrile Methyl Acrylate Methyl tert-Butyl Ether Methylene chloride Naphthalene n-Butyl Benzene n-Propyl Benzene o-Xylene p-Isopropyltoluene sec-Butylbenzene Styrene tert-Butylbenzene Tetrachloroethene Toluene trans-1,2-Dichloroethene Dichloropropene Trichloroethene Trichlorofluoromethane Vinyl chloride Xylenes (total)		pH<2 HCI; ≤6°C		pH<2 HCI; ≤6°C	

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
Radionuclides					
Total Uranium (KPS)		pH<2 HNO3		ASTM D5174	Not Filtered
Dissolved Uranium (KPS)		pH<2 HNO3		ASTM D5174	Field Filter
Gasses					
Headspace-Methane, Ethane, Ethene (GC/FID)				RSK 175 (old SM3810)	Not Filtered
Isotopic Analyses					
Deuterium and O^{18}	Plastic, 250 mls	Cool to 4°C	Indefinite	Lab proprietary methods	Not Filtered

Table 2 – Supplemental Constituents, Laboratory Methods, Containers, Preservatives, and Holding Times

Constituent	Sample Container(s)	Sample Preservative(s)	Sample Holding Time	Laboratory Method	Comments
Field Parameters					
Gross Alpha Radioactivity-Aqueous	Glass, 300 mls			EPA 900.0	1 sample per area
Gross Beta Radioactivity-Aqueous				EPA 900.0	1 sample per area
Tritium					2 samples per area
Radon-Rn					1 sample per area
Benzophenone DEET Phenanthrene					Only analyzed when septic system is upgradient of well

Notes: mls = milliliters

Prior to collecting samples for any metals, the turbidity of the well water shall be measured. If the turbidity of the well water measures less than 20 nephelometric turbidity units (NTUs), the well water shall be sampled for total metals analyses. If the well water measures 20 NTUs or more, the well water shall also be sampled for dissolved metals analyses.

3.6 Sample Identification and Labelling

Prior to conducting field sampling activities, a method for identifying and labelling samples shall be determined. The method used shall include the following:

(1) Date and time samples were collected,
(2) sample preservatives used, if any,
(3) a unique sample identifier (could be well name, Wyoming State Engineer's well permit number, well owner name, or a randomly-assigned unique number, etc.). Whatever method is chosen, it shall be used by all sampling personnel collecting samples for the project at hand, and should be unique enough to provide non-repeating sample identification.
(4) analytes.

All well water samples collected for the project shall be identified in the same manner by all sample collecting personnel.

3.7 Duplicate, Field Blank, and Equipment Rinsate Samples

Each day's sampling for each team of samplers should include at least one (1) of each of the following:

(1) a duplicate sample,
(2) and a field blank sample.

The duplicate sample shall be a repeat or "split" of a randomly-selected site. The WDEQ sampling personnel will randomly select any one of the sites selected for that day's sampling and collect a repeat or split sample at that site. The duplicate sample shall be noted on the field sampling form, but the sample shall not be identified in a manner obvious to the laboratory. Sampling personnel will collect and preserve the sample in a manner identical to the "main" sample collected at the site. The purpose of a duplicate sample is to provide an analytical check for the laboratory analyzing the samples, and it may also be of use if there are issues with sample collection and/or preparation.

Field blank samples shall be prepared by using distilled water preserved in the same manner as the "main" sample. The field blank sample shall be noted on the field sampling form, and shall be identified in a manner obvious to the laboratory. The purpose of a field blank sample is to check that the field equipment has been decontaminated properly, and that sample containers and/or field preservatives/reagents have not been contaminated.

Additional duplicate and field blank samples should be collected/prepared whenever a large volume of samples is collected in a day's time, or there is reason to suspect issues with laboratory analytical techniques or that field equipment may not have been decontaminated properly between samples or that sample containers, field preservatives, and/or reagents may have become contaminated. It is recommended that field blank and duplicate samples be collected/prepared at a minimum of once per sampling day, or every ten (10) samples, whichever is greater.

WDEQ sampling personnel shall also collect an equipment rinsate blank whenever field decontamination of equipment to be re-used in sampling activities is being performed. At least once per week, each piece of field equipment being field decontaminated and re-used for sampling activities shall be field cleaned and rinsed. The rinse water shall be collected and samples prepared for all analytes normally sampled by that piece of equipment. Samples shall be prepared in a manner identical to samples being collected in the field at the time. Equipment rinsate samples shall be identified on the field sampling form in a manner obvious to the laboratory.

3.9 Chain of Custody Requirements

In order to prevent any possibility of sample tampering and to provide a legal record of all persons having contact with groundwater samples, WDEQ personnel must complete a "Chain of Custody" form (Appendix E) every time samples are either turned over to laboratory personnel for analysis, or turned over to a secure shipping company for delivery to laboratory personnel, or turned over to other WDEQ personnel for delivery to a secure shipping company or laboratory. Each laboratory analyzing samples for this project have unique chain of custody forms, sampling personnel must ensure that the correct chain of custody form is completed. Samples must remain in a secure location accessed only by WDEQ personnel until such time as the samples are turned over to secure shipping personnel, laboratory personnel, or other WDEQ personnel. Under no circumstances shall samples be turned over to persons that did not perform sample collection without a completed Chain of Custody form accompanying the samples. Please note that the Chain of Custody forms included in Appendix D are not to scale and are included for illustrative purposes only.

3.10 Sampling Equipment Decontamination Methods/Best Practices

Each non-disposable (not for single-use) piece of equipment used in conjunction with WDEQ sampling activities and intended for re-use shall be decontaminated as per manufacturer's recommendations. For items that have no manufacturer's recommendations, one or more the following procedures shall be used:

(1) the equipment may be wiped clean if the contamination is on a surface that does not contact sample material (for example, on equipment housing or casing), and the contamination is minimal.
(2) the equipment may be water-rinsed using distilled water, if the contamination is minimal and a small area of the equipment (for example, a glass or metal probe) is the only part of the equipment that contacted the sample.
(3) the equipment may be washed with a non-depositing detergent (for example "Simple Green™" or "Alkanox™") and water, followed by a tap water rinse and then a distilled water rinse.

Although not expected to occur, if a re-usable piece of equipment becomes heavily contaminated or contaminated with a substance that cannot be removed by using one of the three (3) methods listed above, WDEQ personnel shall contact the manufacturer of the equipment or a person familiar with heavy contamination equipment rehabilitation for recommendations on how to clean the equipment.

GUIDANCE FOR ACCESSING PRIVATE PROPERTY

DEQ employees have always been obligated to obtain permission prior to entering private land because trespassing on private property has long been a crime in Wyoming. In the 2015 General Session, the Wyoming State Legislature passed Senate File 12, codified at Wyo. Stat. Ann. § 6-3-414. This statute makes it a crime to trespass and collect "resource data." This bill has drawn additional attention to the specific type of trespass that DEQ employees and contractors have the potential to accidentally commit in the course of their work, i.e., crossing over private land without the landowner's permission before collecting "resource data." The possibility, however remote, that a DEQ inspector or field operator could be criminally charged with "trespassing to collect resource data" underscores the need for DEQ to develop and utilize a consistent approach when accessing private property. The following are recommendations that all staff operating in the field should adhere to in order to assure proper access has been provided:

1. **Plan Before You Go**: Review the locations that you anticipate to travel to and the routes that will take you there. Try to stick to public roads. If it appears that you will be crossing private property during the course of your trip, make sure that you obtain access from that landowner or landowners.

2. **Obtain Access and Documentation**: If permission is required, plan ahead. If you can plan far enough ahead, work with the operator to have them assist in getting you access. If there isn't an operator, call or write the landowner or landowners and request written permission to cross the private property. If you need to obtain written permission on the day of your trip, please use the attached template form. Verbal permission is also acceptable if you are comfortable relying on it. If verbal permission is obtained, be sure to note who gave their permission, for what activities, who was with you, and the date and time you obtained permission in your notebook or inspection report.

3. **Data Collection**: Clearly explain to the landowner(s) why you are crossing their property and tell them the type of data you plan to collect (for example, collect water quality data from the North Platte River, conduct an inspection at a mine, photographs of unauthorized solid waste disposal, etc.).

4. **Conditional Access**: Be cautious of landowners providing "conditional access." If a landowner is requesting payment or a conditional access that is subjective, treat it as a denial of access. If denied access, be courteous and respectful and be sure to document the denial in your inspection report or notebook.

5. **Be Cautious**: Above all, if you are uncertain about whether you have access to a parcel, don't cross it. Contact your supervisor to discuss the situation. If access is still not certain, contact your Administrator. Compile a list of questionable locations and delay conducting inspections or field visits until the access issue is resolved. Your safety and respecting property rights is paramount to any inspection or field visit.

Appendix B

CONSENT FOR ACCESSING PRIVATE PROPERTY

I, _____, owner or agent of owner of
(*Name)*

_____, authorize Wyoming
(*Property Description)*

Department of Environmental Quality /Groundwater Section employees to access the

_____
(*Well Name(s))*

for the purpose of collecting groundwater samples and scientific data. This may include photographs, water well samples, location data, site analyses, or any other data deemed pertinent to the investigation at hand.

Signature:_____Date:_____

ENERGY LABORATORIES

Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page _____ of _____

Account Information *(Billing Information)*

Company/Name		
Contact		
Phone		
Mailing Address		
City, State, Zip		
Email		
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email	
Purchase Order	Quote	Bottle Order

Report Information *(If different than Account Information)*

Company/Name
Contact
Phone
Mailing Address
City, State, Zip
Email
Receive Report ☐Hard Copy ☐Email
Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Solids/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

Analysis Requested

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*									See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of

Section A
Required Client Information:

Company: **Wyoming Dept of Environmental Quality**
Address: 200 W 17th Street, Ste 400, Cheyenne, WY 82002
Email To: Nicole.twing@wyo.gov
Phone: Fax:
Requested Due Date/TAT:

Section B
Required Project Information:

Report To:
Copy To:
Purchase Order No:
Project Name:
Project Number:

Section C
Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ _____

Site Location
STATE: _____

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Analysis Test: 18O and Deuterium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

20-July-2015

Attachment #3

How to produce the Web Services and XML's to add wells, lithology, well summary and water quality data to the National Groundwater Monitoring Network (NGWMN)

The Wyoming Department of Environmental Quality/Water Quality Division chose to use ArcGIS to process our well data for the NGWMN. Using ArcGIS can be a very affordable and time saving way to create the web services needed to serve data to the NGWMN Portal. When creating the Web Map Services (WMS) and the Web Feature Services (WFS) in ArcMap, the software creates the web service and the XML's for loading into NGWMN automatically. This procedure gives the step-by-step process that was followed for serving data to the network as seamlessly as possible.

The first step that is not included in this process is to have your data person add the wells and their corresponding data into an Excel spreadsheet or into a database (ArcMap recognizes both types of data out of the box). We also made sure to cross walk our data with the attribute field list provided by the USGS in order to perform a seamless upload.

Next, in order to serve out non-spatial data, map services will need to be created that have the WMS and WFS functions turned on.

The first step is to create a NGWMN feature dataset in your SDE database.

1. In ArcCatalog, double click your SDE connection to connect to your SDE DB.
2. Right Click in the Geodatabase and choose *New>Feature Dataset*
3. IN the dialogue box for Name: type **<NGWMN>** and click Next
4. Next set the Feature Datasets Coordinate System, for Wyoming we used *Geographic Coordinate Systems>North America>USA and Territories>NAD 1983* and click Next
5. For a Vertical Coordinate System do not set a system just click Next
6. Just use the defaults on the Tolerance page and click *Finish*

The next section will be adding the tables into the SDE DB and getting them imported into the feature dataset. We will first add the tables to SDE, then load into ArcMap, and then we will save them into the feature dataset as a feature class. This process is a work around from not registering the table with the server, because these tables are in an Excel workbook.

7. Open ArcCatalog and connect to your SDE DB.
8. Right click in the geodatabase and choose *Import>Table (multiple)*
9. Browse into the Excel Workbook that houses your three tables
10. Click on the first table, then click/hold the shift key and click on the third layer, and click the Add button (the 3 tables will load into your SDE DB).

Next, we are going to add the three tables to the ArcMap document as XY data. This allows us to add the data in a spatial context as a graphic; by doing this the last thing, which we need to do is to export the tables as feature classes in the feature dataset. Here is the procedure to save the loaded tables back as feature classes.

11. Open a blank ArcMap session
12. In the ArcMap document click File>Add data>Add XY data
13. Browse to your Lithology table that you loaded into your SDE connection select the table from the list choose Add

14. Next set the X Field parameter = to DecLongVa
15. Set the Y Field parameter = to DecLatVa
16. Click the Edit… button to set the input coordinate system
17. Browse to *Geographic Coordinate System>North America>USA and Territories>NAD 1983*
18. Click OK
19. Click OK to apply the Add XY Data dialogue
20. Repeat steps 12 – 19 for both the Summary and Well_Log tables

Once the event themes are loaded into the map document, we will save them out as feature classes in our NGWMN feature dataset.

21. Right click on the Lithology event theme and *choose Data>Export Data*
22. Browse to your *SDE DB connection>NGWMN*
23. Save as Type: **LITHOLOGY**, click *Save*
24. Click OK to create the Feature Class in the NGWMN Feature Dataset
25. Repeat steps 21 – 24 to save the SUMMARY and WELL_LOG feature classes

With the Lithology, Summary, and Well Log feature classes created we will now add the layers to ArcMap, save the map document as named NGWMN, and publish the map as a map service with WMS/WFS capabilities. These capabilities are open geospatial consortium capabilities that will allow us to share these layers tabular data as web services that will be consumed by the USGS National Groundwater Monitoring Network.

26. Click on File and choose **Sign In** in order to publish using ArcGIS online in order the share the service with the public.
27. In the ArcGIS Sign In dialogue, sign in using your ArcGIS Online credentials.
28. Next click File and choose Share As>Service.
29. In the Share as Service dialogue, choose Publish a Service, and click **Next**.
30. In the next screen in Choose a Connection choose your GIS Server Admin connection (In order to publish the service).
31. For a Service name use NGWMN (or choose whatever makes sense for your service) and click Next.
32. In this screen Just Use the default settings; Use Existing folder is checked and [root] is the default folder.
33. Click Continue to start publishing.

We are now at the Service Editor Dialogue, this screen allows the user to set the parameters for the service, analyze the service, and then publish the service.

34. On the General Screen, use the defaults.
35. Choose Parameters in the Left Window.
36. Use the defaults in the Parameters Screen, and choose Capabilities on the left.
37. Choose the WFS/WMS options.
38. Click on Pooling in the left window.
39. You can just use the defaults here, but you can work with the Min/Max number of instances per machine if you have problems with the speed of the service.
40. Use the defaults on the Processes, Caching, and Item Description windows.
41. Click on Sharing, and choose Everyone (public).
42. Click the (Green Checkmark) Analyze options in the Upper Right.

As long as there are only Warnings and Messages in the Prepare Dialogue at the bottom of your screen, you can continue with the publishing. However, you may want to check some of the warnings, and change to the specified fix or choose Exception, because this Prepare Dialogue is designed to help you get the best experience with you Map Service after publishing.

43. Next, click the Publish Button to publish the service.
44. If the service was published successfully, click OK on the Service Publishing Results box.
45. Click on the Save button in your Map Document and click the X to close out.

After publishing the service, ArcGIS Server automatically creates the web services for the WFS/WMS options. We will now go into the browser and go into the ArcGIS Online tools to get the Web Services.

46. Open your browser of choice, and added the following URL:

    https://<your.server>/arcgis/admin/login

47. Add your ArcGIS Server Administrator Account/Password.
48. Click the Services button.
49. Click on NGWMN Service.
50. Show: WMS Services

Here is the WMS service:

https://<your server>/<your public facing web adaptor>/services/NGWMN/MapServer/WMSServer

51. Show: WFS Service:

Here is the WFS service:

https:// <your server>/<your public facing web adaptor>/services/NGWMN/MapServer/WFSServer

These services are the start of the web services needed for the publishing of your web services to be accessed by the NGWMN. Here are the Wyoming DEQ public facing web services, items that you will or may need to change in the services to get them to work for you are the server name, the web adaptor name, and possibly the TypeName (depending on what you name your layers).

DEQ GetFeature Lithology:

https://gis.deq.wyoming.gov/arcgis_443/services/NGWMN/MapServer/WFSServer?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&service=WFS&version=2.0.0&TypeName=Lithology

DEQ GetFeature Well Summary:

https://gis.deq.wyoming.gov/arcgis_443/services/NGWMN/MapServer/WFSServer?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&service=WFS&version=2.0.0&TypeName=Summary

DEQ GetFeature Well_Log:

https://gis.deq.wyoming.gov/arcgis_443/services/NGWMN/MapServer/WFSServer?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&service=WFS&version=2.0.0&TypeName=Well_Log

DEQ GetFeature Water Quality:

https://gis.deq.wyoming.gov/arcgis_443/services/NGWMN/MapServer/WFSServer?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&service=WFS&version=2.0.0&TypeName=NGWMN_WQ

Attachment #4

PROPOSAL FOR ANALYTICAL SERVICES

Prepared for the Wyoming Department of Environmental Quality
Request for Proposal (RFP) 0347-B

Pace Analytical
9608 Loiret Blvd.
Lenexa, KS 66219

Table of Contents

1. ***Offeror's company name, business form***
   Pace Analytical (Pace) is pleased to submit this proposal to the Wyoming Department of Environmental Quality. This proposal has been prepared in response to requirements established in the Request for Proposal (RFP).

The offeror is identified as:
Pace Analytical
9608 Loiret Blvd.
Lenexa, KS 66219

2. ***Name, title, mailing address, e-mail address and telephone number of Offeror's point of contact for purposes of this RFP and any resulting contract:***

Points of Contact

Richard Mannz
Project Manager
Pace Analytical
4120 Seven Hills Dr.
Florissant, MO 63033
richard.mannz@pacelabs.com
314-838-7223

Kaleb Meihls
Account Executive
Pace Analytical
9608 Loiret Blvd.
Lenexa, KS 66219
kaleb.meihls@pacelabs.com
303-522-9706

3. Offerer's Business History: Pace Analytical (Pace) has offered environmental analytical services for 38 years, having been incorporated in 1978 as PACE, Inc. In 1995, Pace Analytical Services Incorporated was formed from the purchase of the assets of PACE, Inc. During the period 1978 through 2017, Pace has acquired regional laboratories and opened other locations based on customer needs. Pace currently owns and operates close to 30 laboratories, including

specialty services such as radiochemistry and air testing, and close to 30 service centers throughout the United States. All work performed under this contract will be coordinated by the Lenexa, KS Laboratory with the following locations lending support as necessary:

- Pace Minneapolis, MN
- Pace Pittsburgh, PA
- Eurofins, PA – subbed VOC compounds
- Pacific Agriculture Labs, Oregon – subbed DEET testing

The operation of each Pace laboratory is governed by a corporate quality management system, has centralized treasury functions, uses or is being transitioned to use EPIC Pro lab management software for sample management and is managed by a team of Senior General Managers, General Managers and Lab Managers under the direction of the CEO Mr. Steve Vanderboom, COO Mr. Mike Fuller and Executive Vice President/CSO Mr. Greg Whitman.

3. Offeror's Expertise

For the purpose of this project, Pace will assign a Project Manager, Richard Mannz, to oversee lab analyses. The project manager will be managed by the Lenexa, KS Client Services Manager. The laboratory analysis will jointly be managed by the Lab Manager, the Quality Manager and the Project Manager.

Richard Mannz, Pace Project Manager, has his BS in Environmental Biology/Zoology from Eastern Illinois University and his MS in Environmental Science from Southern Illinois University. Richard has worked in the environmental industry for 39 years, starting with the Peabody Coal Company as an Assistant Chemist and later as a Company Biologist. He made the jump to the contract laboratory business in 1985, serving in many laboratory management positions. Richard has served Pace since 2014 and has a firm grasp on Pace's quality system and importance of quick and accurate responses and data.

Pace has experience working on multiple projects in WY, including similar projects as this. Trihydro Corporation based out of Laramie, WY can be contacted as a reference for quality of work, accuracy of data, data deliverables, etc. Contact information included below:

Pace Analytical
9608 Loiret Blvd.
Lenexa, KS 66219

Christina Hiegel

Trihydro Corporation

307-745-7474

chiegel@trihydro.com

5. ***Offeror's Quality Assurance Plan***

Pace's Quality Assurance Plan is based on NELAC (formerly National Environmental Laboratory Accreditation Council) requirements, has been subject to auditor review and is mature in its application in the laboratory. The written plan (available to you upon request) consists of nine sections that provide structure and organization to the purpose, management and operation of Pace's quality procedures. The following is a synopsis of the plan with a description of its application to the laboratory operation.

1.0 Introduction and Organizational Structure addresses the purpose of the organization, the quality policy statement and the goals of the quality system. Our core values, code of ethics and standards of conduct are clearly defined in this section. Our President, Mr. Steve Vanderboom, asks us to refer to these when we make decisions for Pace. Also in this section, the laboratory organization, job descriptions, training, safety and confidentiality of information are addressed.

2.0 Our rules on Sample Custodies are defined in this section of the manual. Requirements for how samples are received, tracked through the laboratory, stored and disposed of are given here.

3.0 Our Analytical Capabilities are defined in this section. The equipment we operate, the method sources we use and our actual practices are defined in this part of our plan. Guidance for the documentation of our internal practices called "Standard Operating Procedures", method validation and demonstration of analyst and equipment capability are available upon request.

4.0 Control of the quality of the work is described in the Quality Control Procedures section of the quality assurance plan. Maintaining data integrity is clearly addressed as an integral part of our laboratory operation. Use of quality control samples such as method blanks, laboratory control samples, matrix spikes and duplicates is prescribed with frequency and control limits. Suggestions and requirements for field quality control samples are also described. Demonstration of our ability to test samples and report

sample concentrations correctly is supported by the use of proficiency testing studies administered by outside sources. Requirements associated with that activity are included.

5.0 Document Management and Change Control are critical aspects of laboratory operation. The control of documents used in a laboratory provide assurance to management and clients that all our employees are "on the same page" when it comes to methods, quality policies, regulatory requirements and operational guidance. When it's time to change an aspect of our business, control of the change by management is important. When change occurs, documentation is important for tracking the effects of the change on clients, samples and our business.

6.0 Equipment and Measurement Traceability is required because "no man is an island". Our weights, volumes and measures must be equal to those of the rest of the world. To assure this, the documentation that connects measurements with the calibration of the measuring devices is critical to proper laboratory operation. When instruments are maintained, repaired and or recalibrated, documentation of those activities connects the condition of the equipment with the test results produced. This documentation is used to verify the test results are produced using a well maintained and properly calibrated instrument.

7.0 Through careful Control of Data, Pace can assure its clients that data produced in our well controlled system is reported and stored correctly for as long as the data has potential value for its users. Pace's system of result processing, verification, report generation and data storage assures our clients and regulators that evidence required to support our work will be available for years to come. Our practices for disposal of data when its archival age has been reached, protects the regulatory and regulated communities.

8.0 Our quality system is maintained as state of the industry through frequent Quality System Audits and Reviews. Internal audits are performed by Pace staff knowledgeable in the current practices expected of environmental analytical laboratories. External audits of our operations are frequently performed by regulatory agencies and our customers. Recommendations made by them are followed and tracked through our management of change process. Quarterly reports to management by the quality systems manager and subsequent annual management reviews help maintain the entire laboratory system in top condition.

9.0 Corrective Action is sometimes called for in order to improve our work. Audit findings may be the cause of corrective action, but our continuous improvement committees work within Pace's structure to provide recommendations for improvement as well.

In addition, Pace staff go through an integrated approach for continuous improvement. We are committed to a training program for all project management, technical and support staff. To accomplish this, Pace embarked on our 3P Process: Process, Productivity and Performance. 3P gives us a process to monitor our business through key performance metrics that include all of the stakeholders in our company, including our customers and vendors. By measuring our performance against industry benchmarks, competitors and internal goals and objects, Pace can stay on the leading edge of providing cost effective services, excellent quality data, competitive turnaround times and innovative services for our customers and employees.

6. Pricing/Methods

All prices include:

- Containers, preservatives, coolers, cooler liners, pre-printed labels, pre-printed chains of custody and temperature blanks (Pace does not provide micron filters but can provide information on suppliers)
- Standard Electronic Deliverables via email
- Access to Data via PacePort https://paceport.pacelabs.com/ClientPortal/

7.Conclusion

We look forward to providing the services needed and are thankful for the opportunity. With our quality driven structure and like-minded work force, we believe we are a great fit for the Wyoming Department of Environmental Quality and look forward to building a relationship for years to come.

while meeting the associated reporting limits, quality standards, and providing accurate data in hard copy laboratory reports and electronic data deliverables. Table 1 below lists analytes and WDEQ action levels for which the samples will be analyzed. Reporting limits must be below the WDEQ action levels.

Table 1.

Analysis Group	Analyte	CAS Number	Action Levels (ug/L)
Bacteria	E. Coli		NA*
Bacteria	Total coliform		NA
Dissolved hydrocarbon gases	Ethane	74-84-0	NA
Dissolved hydrocarbon gases	Ethene	74-85-1	NA
Dissolved hydrocarbon gases	Methane	74-82-8	NA
Environmental Isotopes	$^{18}O/^{16}O$		NA
Environmental Isotopes	$^{2}H/^{1}H$		NA
Environmental Isotopes	Tritium, Total	10028-17-8	NA
General chemistry	Bicarbonate (mg/L as HCO3)	144-55-8	NA
General chemistry	Carbonate (mg/L as CO3)		NA
General chemistry	Alkalinity, total (mg/L as CaCO3)	3812-32-6	NA
General chemistry	Hardness		NA
Major Ions (total)	Magnesium	7439-95-4	NA
Major Ions (total)	Sodium	7440-23-5	20,000
Major Ions (dissolved)	Calcium	7440-70-2	NA
Major Ions (dissolved)	Chloride	16887-00-6	250,000
Major Ions (dissolved)	Fluoride	16984-48-8	4,000
Major Ions (dissolved)	Magnesium	7439-95-4	NA
Major Ions (dissolved)	Potassium	7440-09-7	NA
Major Ions (dissolved)	Silica (SiO2)	763-18-69	NA
Major Ions (dissolved)	Sodium	7440-23-5	20,000
Major Ions (dissolved)	Sulfate as SO4	148-08-798	250,000
Major Ions (dissolved)	Total Dissolved Solids (TDS)		500,000
Major Ions (total)	Calcium	7440-70-2	NA
Major Ions (total)	Chloride	16887-00-6	250,000
Major Ions (total)	Fluoride	16984-48-8	4,000
Major Ions (total)	Potassium	7440-09-7	NA
Major Ions (total)	Silica (SiO2)	763-18-69	NA
Major Ions (total)	Sulfate as SO4	148-08-798	250,000
Nutrients	Ammonia as Nitrogen	7664-41-7	0.5
Nutrients	Dissolved Organic Carbon	7440-44-0	NA
Nutrients	Nitrate as Nitrogen	14797-55-8	10,000
Nutrients	Nitrite as Nitrogen	14797-65-0	1,000
Nutrients	Nitrogen, Total (TN)		NA
Nutrients	Orthophosphate as P	14265-44-2	NA
Radionuclides	Radon 222, Total (pCi/L ± csu)		NA
Radionuclides (dissolved)	Gross alpha radioactivity		NA
Radionuclides (dissolved)	Gross beta radioactivity		NA
Radionuclides (total)	Uranium 238		30
TOC - TN	Nitrogen, Total		NA
Trace Elements (dissolved)	Aluminum	7429-90-5	33,333
Trace Elements (dissolved)	Antimony	7440-36-0	6

Analysis Group	Analyte	CAS Number	Action Levels (ug/L)
Trace Elements (dissolved)	Arsenic	7440-38-2	10
Trace Elements (dissolved)	Barium	7440-39-3	2,000
Trace Elements (dissolved)	Beryllium	7440-41-7	4
Trace Elements (dissolved)	Boron	7440-42-8	750
Trace Elements (dissolved)	Cadmium	7440-43-9	5
Trace Elements (dissolved)	Chromium	7440-47-3	100
Trace Elements (dissolved)	Cobalt	7440-48-4	10
Trace Elements (dissolved)	Copper	7440-50-8	1,000
Trace Elements (dissolved)	Iron	7439-89-6	300
Trace Elements (dissolved)	Lead	7439-92-1	15
Trace Elements (dissolved)	Lithium	7439-93-2	NA
Trace Elements (dissolved)	Manganese	7439-96-5	50
Trace Elements (dissolved)	Molybdenum	7439-98-7	167
Trace Elements (dissolved)	Nickel	7440-02-0	667
Trace Elements (dissolved)	Selenium	7782-49-2	50
Trace Elements (dissolved)	Silver	7440-22-4	100
Trace Elements (dissolved)	Strontium	7440-24-6	8,000
Trace Elements (dissolved)	Thallium	7440-28-0	2
Trace Elements (dissolved)	Vanadium	7440-62-2	167
Trace Elements (dissolved)	Zinc	7440-66-6	5,000
Trace Elements (total)	Aluminum	7429-90-5	33,333
Trace Elements (total)	Antimony	7440-36-0	6
Trace Elements (total)	Arsenic	7440-38-2	10
Trace Elements (total)	Barium	7440-39-3	2,000
Trace Elements (total)	Beryllium	7440-41-7	4
Trace Elements (total)	Boron	7440-42-8	750
Trace Elements (total)	Cadmium	7440-43-9	5
Trace Elements (total)	Chromium	7440-47-3	100
Trace Elements (total)	Cobalt	7440-48-4	10
Trace Elements (total)	Copper	7440-50-8	1,000
Trace Elements (total)	Iron	7439-89-6	300
Trace Elements (total)	Lead	7439-92-1	15
Trace Elements (total)	Lithium	7439-93-2	NA
Trace Elements (total)	Manganese	7439-96-5	50
Trace Elements (total)	Molybdenum	7439-98-7	167
Trace Elements (total)	Nickel	7440-02-0	667
Trace Elements (total)	Selenium	7782-49-2	50
Trace Elements (total)	Silver	7440-22-4	100
Trace Elements (total)	Strontium	7440-24-6	8,000
Trace Elements (total)	Thallium	7440-28-0	2
Trace Elements (total)	Vanadium	7440-62-2	167
Trace Elements (total)	Zinc	7440-66-6	5,000
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	3.45
VOCs	1,1,1-Trichloroethane	71-55-6	200
VOCs	1,1,2,2-Tetrachloroethane	79-34-5	0.45
VOCs	1,1,2-Trichloroethane	79-00-5	5
VOCs	1,1-Dichloroethane	75-34-3	15.7

Analysis Group	Analyte	CAS Number	Action Levels (ug/L)
VOCs	1,1-Dichloroethene	75-35-4	7
VOCs	1,1-Dichloropropene	563-58-6	0.897
VOCs	1,2,3-Trichlorobenzene	87-61-6	26.7
VOCs	1,2,3-Trichloropropane	96-18-4	0.003
VOCs	1,2,4-Trichlorobenzene	120-82-1	70
VOCs	1,2,4-Trimethylbenzene	95-63-6	333
VOCs	1,2-Dibromo-3-chloropropane	96-12-8	0.2
VOCs	1,2-Dibromoethane (EDB)	106-93-4	0.05
VOCs	1,2-Dichlorobenzene	95-50-1	600
VOCs	1,2-Dichloroethane	107-06-2	5
VOCs	1,2-Dichloropropane	78-87-5	5
VOCs	1,3,5-Trimethylbenzene	108-67-8	333
VOCs	1,3-Dichlorobenzene	541-73-1	75
VOCs	1,3-Dichloropropane	142-28-9	667
VOCs	1,3-Dimethyl adamantane	702-79-4	26,000
VOCs	1,4-Dichlorobenzene	106-46-7	75
VOCs	2,2-Dichloropropane	594-20-7	2.49
VOCs	2-Butanone	78-93-3	20,000
VOCs	2-Chlorotoluene	95-49-8	667
VOCs	2-Hexanone	591-78-6	167
VOCs	4-Chlorotoluene	106-43-4	667
VOCs	4-Methyl-2-pentanone	108-10-1	NA
VOCs	Acetone	67-64-1	30,000
VOCs	Acrylonitrile	107-13-1	0.0000002**
VOCs	Adamantane	281-23-2	26,000
VOCs	Allyl chloride	107-05-1	0.000004**
VOCs	Benzene	71-43-2	5
VOCs	Bromobenzene	108-86-1	267
VOCs	Bromochloromethane	74-97-5	1.45
VOCs	Bromodichloromethane	75-27-4	81
VOCs	Bromoform	75-25-2	81
VOCs	Bromomethane	74-83-9	46.7
VOCs	Carbon disulfide	75-15-0	3,333
VOCs	Carbon tetrachloride	56-23-5	5
VOCs	Chlorobenzene	108-90-7	100
VOCs	Chlorodibromomethane	124-48-1	80
VOCs	Chloroethane	75-00-3	NA
VOCs	Chloroform	67-66-3	81
VOCs	Chloromethane	74-87-3	NA
VOCs	cis-1,2-Dichloroethene	156-59-4	70
VOCs	cis-1,3-Dichloropropene	10061-01-5	0.9
VOCs	Dibromomethane	74-95-3	15.7
VOCs	Dichlorodifluoromethane	75-71-8	6.67
VOCs	DRO		10,000
VOCs	Ethyl Ether	60-29-7	0.007
VOCs	Ethylbenzene	100-41-4	700
VOCs	GRO	8006-61-9	6,600

Analysis Group	Analyte	CAS Number	Action Levels (ug/L)
VOCs	Hexachlorobutadiene	87-68-3	1.15
VOCs	Iodomethane	74-88-4	NA
VOCs	Isopropylbenzene	98-82-8	3,333
VOCs	m,p-Xylene	179601-23-1	10,000
VOCs	Methacrylonitrile	126-98-7	0.000003**
VOCs	Methyl Acrylate	96-33-3	NA
VOCs	Methyl tert-Butyl Ether	1634-04-4	50
VOCs	Methylene chloride	75-09-2	5
VOCs	Naphthalene	91-20-3	667
VOCs	n-Butyl Benzene	104-51-8	1,667
VOCs	n-Propyl Benzene	103-65-1	3,333
VOCs	o-Xylene	95-47-6	6,667
VOCs	p-Isopropyltoluene	99-87-6	2,667
VOCs	sec-Butylbenzene	135-98-8	3,333
VOCs	Styrene	100-42-5	100
VOCs	tert-Butylbenzene	98-06-6	3,333
VOCs	Tetrachloroethene	127-18-4	5
VOCs	Toluene	108-88-3	1,000
VOCs	trans-1,2-Dichloroethene	156-60-5	100
VOCs	trans-1,3-Dichloropropene	10061-02-6	0.9
VOCs	Trichloroethene	79-01-6	5
VOCs	Trichlorofluoromethane	75-69-4	10,000
VOCs	Vinyl chloride	75-01-4	2
VOCs	Xylenes (total)	1330-20-7	10,000
Wastewater compounds	Benzophenone	119-61-9	NA
Wastewater compounds	N,N-diethyl-meta-toluamide (DEET)	134-62-3	NA
Wastewater compounds	Phenanthrene	85-01-8	NA

*NA = WDEQ Action level is not available. Reporting limit should be standard reporting limit for the analyte.
** Extremely low action level. Reporting limit may be able to reach action level but needs to be as low as possible.

In addition to using methods that are sensitive enough to meet the required reporting limits at or below the WDEQ action levels, the following inclusions should be considered while preparing a response to the RFP:

1. Ground shipping costs for coolers and empty bottle sets from the laboratory to WDEQ and overnight shipping costs for full bottle sets from closest shipping store to the sampling site back to the laboratory.
2. Coolers and bottle sets with appropriate preservatives (including bottles for isotopic analysis), pre-printed sample bottle labels, chain of custody forms and tape, plastic bags for ice and samples, temperature blanks, and disposable high flow 0.45-micrometer (µm) pore-size filters for field filtration of water samples for dissolved ion and metal analysis.
3. Analysis performed by accredited/certified/registered laboratories, including subcontract laboratories (provided with proposal), using validated analytical methods. Note that WDEQ accepts and encourages microextration (EPA method 3511) to prepare samples for some organic analysis, where appropriate.
4. Standard (Level II) quality control (QC) package.
5. Quality Assurance Project Plan (QAPP) explaining at a minimum:
   5.1. Accreditations and Certifications;

PROPOSAL PRICE SHEET

The undersigned agrees to provide groundwater sample preparation and analysis for the Department of Environmental Quality, Ambient Groundwater Monitoring Program in accordance with the Request for Proposal, General Provisions, Special Provisions and Proposal Price Sheet for Request for Proposal No. 0347-B.

RFP- 0347-B

DESCRIPTION	LUMP SUM PRICE (Written in Words and Number)
Individual proposed costs should be submitted (preferably on one table) for the following items:	
Total for each Analysis Type	See attached quote $ -
Total for One Sampling Location for analytes listed in Table 1	One thousand four hundred ninety eight and "no $ 1,498
Total for Thirty Sampling Location in 2017 for analytes listed in Table 1	Forty four thousand one hundred ninety and "no $ 44,190 (includes 15 sample shipments, if applicable)
Total for Fifty (50) Sampling Location for analytes listed in Table 1, for years 2018 through 2022	Three hundred sixty eight thousand two hundred fifty $ 368,250 (includes 25 sample shipments/year, if applicable)
TOTAL:	$ 412,440 (2017-2022)

1. BY SUBMISSION OF A PROPOSAL, THE PROPOSER CERTIFIES:

   1.1 Prices in this proposal have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.

   1.2 No attempt has been made nor will be by the proposer to induce any other person or firm to submit a proposal for the purpose of restricting competition.

   1.3 The person signing this proposal certifies that he/she is authorized to represent the company and is legally responsible for the decision as to the price and supporting documentation provided as a result of this advertisement.

   1.4 Proposer will comply with all Federal regulations, policies, guidelines and requirements.

   1.5 Prices in this proposal have not been knowingly disclosed by the proposer and will not be prior to award to any other proposer.

2. GENERAL INFORMATION:

Proposer Name Kaleb Meihls Phone ( ) 303-522-9706

Email Address kaleb.meihls@pacelabs.com FAX ( )

Mailing Address 268 E. 40th Ave.

City Denver State Co Zip 80205

Employer Identification Number 41-1821617

3. OWNERSHIP AND CONTROL:

Proposer's Legal Structure:

_____Sole Proprietorship _____General Partnership

_____Corporation _____Limited Partnership

✓ Limited Liability _____Other_____

If Proposer is a sole proprietorship, list:

Owner Name_____ Phone ( )_____

Mailing Address_____

City_____ State_____ Zip_____

Employer Identification Number_____

Beginning date as owner of sole proprietorship_____

Provide the names of all individuals authorized to sign for the Proposer:

NAME (printed or typed)	TITLE
Charles Girgin	General Manager

VERIFICATION

I certify under penalty of perjury, that I am a responsible official (as identified above) for the business entity described above as Proposer, that I have personally examined and am familiar with the information submitted in this disclosure and all attachments, and that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including criminal sanctions which can lead to imposition of a fine and/or imprisonment.

Charles Girgin

(Signature)

Charles Girgus, General Manager 6/26/17

(Name and Title) (Typed or Printed) (Date)

Pace Analytical Services, LLC
9608 Loiret Boulevard
Lenexa, KS 66219
Phone: 913-599-5665
Fax: 913-599-1759

Contact Information

Contact Name	Angela Morson	Quote Number	00038581
Account Name	Wyoming DEQ	Prepared By	Kaleb Meihls
Phone	(307) 777-6705	Email	kaleb.meihls@pacelabs.com
Email	angela.morson@wyo.gov		

Project Information

Quote Name	170626_WYDEQ_RFP 0347-B - GW Monitoring_38581	Created Date	6/27/2017
		Shipping Information	If shipment is over $500 analytical, Pace will cover shipping
Project Duration	5 years		
Project Location	WY	Report Level	Level 2
Turn Around Time	Standard TAT - 7-10 business days 3-5 day TAT - 50% rush surcharge 1-2 day TAT - 100% rush surcharge	EDD Requirements	WDEQ format
Special Instructions	2017 - 30 sites 2018 - 2022 - 50 sites/year NO BID: Total coliform E.coli 1,3 dimethyl adamantane (702-79-4) Adamantane (281-23-2) Benzophenone (119-61-9)		

Address Information

Bill To Name	Wyoming DEQ	Ship To Name	Wyoming DEQ
Bill To	122 West 25th Street Herschler Building 4W Cheyenne, WY 82002		

Quote Details

Quantity	Method	Product	Line Item Description	Sales Price	Sub-Total	Total-Price
1.00	SM 2320B	Alkalinity, as CaCO3 (bicarbonate/carbonate) - water		$10.00	$10.00	$10.00
1.00	EPA 300.0	Chloride (water)		$10.00	$10.00	$10.00
1.00	EPA 300.0	Chloride (water)	Dissolved, filtered in the field	$10.00	$10.00	$10.00
1.00	EPA 6010	Dissolved Metals, Field Filtered	See list for metals needed	$144.00	$144.00	$144.00
		Dissolved Metals, Field				

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1.00	EPA 6020	Filtered	Dissolved Sb and Tl	$23.00	$23.00	$23.00
1.00	SM 5310	Dissolved Organic Carbon (DOC)	Filtered in the field, single run	$30.00	$30.00	$30.00
1.00	EPA 300.0	Fluoride (water)		$20.00	$20.00	$20.00
1.00	EPA 300.0	Fluoride (water)	Dissolved, filtered in the field	$20.00	$20.00	$20.00
1.00	EPA 900.0	Gross Alpha Radioactivity-Aqueous	Dissolved, filtered in the field, subbed to Pace Pittsburgh, PA	$22.00	$22.00	$22.00
1.00	EPA 900.0	Gross Beta Radioactivity-Aqueous	Dissolved, filtered in the field, subbed to Pace Pittsburgh, PA	$22.00	$22.00	$22.00
1.00	SM 2340	Hardness, total (water) (Calculation Only)		$10.00	$10.00	$10.00
1.00	RSK 175 (old SM3810)	Headspace-Methane, Ethane, Ethene (GC/FID)	Subbed to Pace Minneapolis, MN	$70.00	$70.00	$70.00
1.00	EPA 6010B/ 200.7 (ICP)	Metal Analysis (First Metal)	Silica	$10.00	$10.00	$10.00
1.00	EPA 6010B/ 200.7 (ICP)	Metal Analysis (First Metal)	Dissolved silica, filtered in the field	$10.00	$10.00	$10.00
1.00	EPA 6010B (ICP)	Metal Analysis: 9+ Metals (Incl. digestion)	See list for metals needed	$150.00	$150.00	$150.00
1.00		Miscellaneous	O and H isotopes, no EPA method reference is available for this analysis (Pace SOP is being used), 6-8 week turn around time, subbed to Pace Energy Pittsburgh, PA	$100.00	$100.00	$100.00
1.00		Miscellaneous	NO BID DUE TO CAPABILITIES - 1,3 dimethyl adamantane (702-79-4), adamantane (281-23-2), benzophenone (119-61-9)	$0.00	$0.00	$0.00
1.00		Miscellaneous	DEET testing, method 8321, report limit of 1 ug/L, subbed to Pacific Ag. Labs, Oregon	$160.00	$160.00	$160.00
1.00	EPA 350.1	Nitrogen, Ammonia (water)		$15.00	$15.00	$15.00
1.00	EPA 353.2	Nitrogen, Nitrate (water)		$10.00	$10.00	$10.00
1.00	EPA 353.2	Nitrogen, Nitrite (water)		$10.00	$10.00	$10.00
1.00	EPA 353.2 + 351.2	Nitrogen, Total	Calculation only	$10.00	$10.00	$10.00
	EPA	Nitrogen, Total Kjeldahl				

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1.00	351.2	(TKN) (water)		$20.00	$20.00	$20.00
1.00	N/A	Per Cooler Shipping: Flat Rate	FedEx, if shipment is over $500 analytical, Pace will cover shipping	$50.00	$50.00	$50.00
1.00	EPA 365.2	Phosphorus, Ortho		$15.00	$15.00	$15.00
1.00	SM 7500-Rn	Radon-Rn (Liquid Scintillation Method)	Total radon 222, subbed to Pace Pittsburgh, PA	$40.00	$40.00	$40.00
1.00	EPA 8270	Semi-Volatile Organics (full list SVOCs) (Water)	Phenanthrene only	$150.00	$150.00	$150.00
1.00	SM 2540C	Solids, Total Dissolved (TDS)		$10.00	$10.00	$10.00
1.00	EPA 300.0	Sulfate - Water		$10.00	$10.00	$10.00
1.00	EPA 300.0	Sulfate - Water	Dissolved, filtered in the field	$10.00	$10.00	$10.00
1.00	SM 9223B	Total Coliforms, Bacteria (Colilert w/E. Coli)	NO BID DUE TO SHORT HOLD TIME	$0.00	$0.00	$0.00
1.00	EPA 6020	Total Metals (water)	TI only	$13.00	$13.00	$13.00
1.00	SM 5310C	Total Organic Carbon (TOC) (Water)	Single run	$30.00	$30.00	$30.00
1.00	ASTM D5174	Total Uranium (KPS) - Aqueous Only	.25 ug/L, Subbed to Pace Pittsburgh, PA	$35.00	$35.00	$35.00
1.00	EPA 8015M	TPH as Diesel (TPH-DRO)(Water)		$30.00	$30.00	$30.00
1.00	EPA 906.0	Tritium - Aqueous or Solid	Reported in pCi/L, 6-8 weeks turn around time, subbed to Pace Pittsburgh, PA	$75.00	$75.00	$75.00
1.00	EPA 8260	Volatile Organic Compounds (VOCs) (Water)	See list for compounds needed, GRO included	$75.00	$75.00	$75.00
1.00	EPA 8260	Volatile Organic Compounds (VOCs) (Water)	Allyl chloride, methacrylonitrile, methyl acrylate, subbed to Eurofins, Lancaster, PA	$69.00	$69.00	$69.00

Grand-Total $1,498.00

Additional Pricing Considerations:

If you have specific questions about any conditions noted below, please contact your Pace Analytical Representative.
•Proposal expires 60 days from created date above, unless accepted, signed and returned.
• Quoted prices include standard Pace Analytical QA/QC, reporting limits, compound lists and standard report format unless noted otherwise.
• If project specific MS/MSD samples are submitted, they may be billable.
• TAT (Turn Around Time) is in working days unless otherwise specified above.
• TCLP/SPLP Rotations will incur a surcharge of $100 per fraction for Rush TAT requests.
• To ensure requested TAT is available, please coordinate with your Pace Analytical representative at time of sample submittal.

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- Any deviation from the above quoted scope of work, including sample arrival date and volume, may result in adjustment of prices.
- Please include Quote Number on Chain-of-custody to ensure proper billing.
- Pricing includes standard delivery of bottle/sample kits and coolers.
- Charges will apply for non-standard shipping and for projects where shipping exceeds 10% of the total analytical costs of the shipment.

_____ _____
Client Signature Date

Terms and Conditions

Pace Analytical Services, Inc.: Terms and Conditions

1. **Controlling Provisions** - These Standard Terms and Conditions ("Terms") govern the agreed-upon services (the "Project) that Pace Analytical _____("Pace") will perform on behalf of _____("Client") (collectively, the Parties) and superseded any other written provisions (including purchase/work orders) related to the Project, as well as prior discussions, courses of dealing, or performance.

2. **Warranty** - Pace hereby warrants that it will: 1) conduct all tests and observations using the protocols and laboratory procedures as specified in accepted task orders, scopes of work, proposals, or written instructions ("Contract Paperwork"); and 2) uphold the reasonable scientific and engineering standards in effect in the industry at the time the service/s is/are performed. If Client subsequently, including pursuant to an executed amendment, direct different procedures and/or protocols, which may or may not involve the use of any third-party laboratory or contractor, Pace cannot warrant the results and Client shall hold Pace harmless from all claims, damages, and expenses arising from Client's direction.

3. **Data** - Pace will provide Cilent with data as specifed in the Contract Paperwork. Following final report issuance, Pace will retain back-up data for up to three (3) years and final reports for up to five (5) years. Pending Client's payment in full for Pace's contracted services, Pace may retain any Client data not already released.

4. **Intellectual Property/Ownership** - Pace shall retain sole ownership of any new method, procedure, or equipment it develops or discovers while performing services pursuant to the Contract Paperwork.

5. **Non-competition** - Client shall not solicit or recruit Pace personnel for at least 12months following the termination of the Project governed by these Terms.

6. **Sample Delivery, Accpetance, and Containers** - Client shall provide Pace with at least 10 business days' prior written notice of the delivery of any sample(s). Within 72 hours following Client's notice, Pace shall issue a written rejection of the sample(s) or its acceptance may be presumed. Notwithstanding the foregoing, Client shall remain liable for any loss or damage to the sample(s) until Pace evidences its acceptance on the chain of custody documents. Pace reserves the right to charge for any sample container(s) that are: a) provided to, but not used, by Client; or b) received by Pace, but not analyzed at Client's request.

7. **Sample Storage and Disposal** - Pace shall dispose of any non-hazardous sample(s) within 30 days following the issuance of Client's final report. In addition, Pace may return, and Client must accept, any/all highly hazardous, acutely toxic, or radioactive sample(s), sample containers, and residues, as well as any/all sample(s) for which no approved method of disposal exists.

8. **Non-Assignment** - Neither party may assign or transfer any rights or obligations existing under these Terms without prior written notice to the other party, except that Pace may, without notice to its Client: a) transfer the Project to another Pace laboratory; or 2) subcontract the Project to a third-party laboratory.

9. **Time of Completion; Force Majeure** - Pace shall use its best efforts to accomplish the Project within any specified time limiations. Pace shall not be held responsible for any non-performance or delay caused by Client, Client's employee, agents, or contractors, or factors or events beyond Pace's control, such as government shutdowns, natural disasters, labor strikes or acts of God.

10. **Compensation -**
a) The pricing offered to Client by Pace is predicated upon Client's acceptance of these Terms. In most cases, the pricing includes all sample containers and preservatives as prescribed by the analytical method requested for each determination. Credit worthiness will be determined based upon an assessment of Client's payment history, credit reports, financial stability, and/or other factors. If Pace is serving as a subcontractor for Client, Pace may seek and receive information about the Prime Client prior to granting credit. If credit is not granted, Client must pay Pace prior to initiation of the Project.

b) Client agrees to pay for services as documented by Pace and accepted by Client. Payment terms for uncontested invoice items are net 30 days. Client must notifiy Pace in writing within 15 days of its receipt of the invoice in order to suspend its payment and interest obligations for any disputed invoice items pending resolution. Beginning 30 days after the invoice date, Pace may charge interest on all unpaid and undisputed balances at the rate of 1.5% per month, not to exceed the maximum rate allowed by law. Client may ask Pace to invoice a third party, although Client shall remain ultimately responsible for the payment of any outstanding balance.

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c) Client's failure to pay within 60 days of Pace's dated invoice shall constitute a material breach of these Terms, for which Pace may terminate all of its duties hereunder without liability. If Pace must subsequently take action to collect payment, Client shall pay all associated costs thereof, including attorneys' fees. Any significant changes to the scope of work following the submittal of a price quotation or the delivery of samples to the laboratory are subject to a renegotiation of prices and/or terms relating to the original scope of work. Qualifying changes may include, but are not limited to: QA/QC requirements and procedures: detection limits; samples received and stored, but not analyzed; a decrease in quantity of samples delivered compared to quantity quoted; and reporting and other deliverable format requirements. Pace shall not be required to comply with such changes unless Pace agrees to them in writing.

11. **Risk Allocation and Damages** - Client accepts that the Project may involve inherent risks and that Pace cannot always guarantee satisfactory results. Notwithstanding the foregoing, if a court of competent jurisdiction finds that Pace failed to meet applicable standards and if Client suffers damages as a result, Pace's aggregate liability for its negligence or unintentional breach of contract shall not exceed the total fee paid for its services.

This limitation shall not apply to losses arising from Pace's negligence or willful misconduct, so long as:

1. Client notifies Pace within: 30 days from the date of discovery of Pace's claimed negligence or misconduct; or two years from the date of the Client's claimed losses; and
2. Pace is allowed to investigate and, insofar as possible, mitigate Client's claimed losses.

Neither Pace nor Client shall be liable to the other for special, incidental, consequential, or punitive losses, except as allowed in Section 12. Client Responsibilities below.

12. **Client Responsibilities** - Client shall:
a) Provide Pace with full and complete information about all known or reasonably knowable factors that could affect Pace's ability to perform its obligations, and promptly notifiy Pace if it discovers same following Project initiation;
b) Enable access by Pace personnel and/or subcontractor to any site where Pace is to perform work, and to all Client personnel who are critical to the success of the Project;
c) Obtain, on behalf of Pace, any authority or permission required by any third party;
d) Provide Pace with at least 10 business day's notice of any known or reasonably knowable delay regarding the start-up, progress, or completion fo the Project; and
e) Pay for Pace's reasonable costs to perform any out-of-scope services, such as compliance audits, responding to subpoenas, etc.

If Client defaults on any of these responsibilities and Pace incurs labor and/or material costs as a result, Client shall reimburse Pace for its actual expenses, as well as any lost profits directly attributable to Client's default.

13. **Indemnification** - Pace shall indemnify and hold Client harmless from and against any demads, losses, damages, and expenses caused by Pace's negligence or willful misconduct, as well as by the negligence and willful misconduct by persons for whom Pace is legally responsible. Client shall likewise indemnify and hold Pace harmless from and against the demands, losses, damages, and expenses caused by Client's negligence or willful misconduct, including Client's use of Pace's name and/or registered mark for anything other than the specific purpose for which it was intended. In addition, Client shall fully indemnify Pace from and against any and all claims by a third party, as well as for all related losses, costs, fees, damages, liabilities or expenses arising out of or relating to Client's breach of these Terms or its violation of applicable laws.

14. **Insurance** - Pace carries liability insurance with limits as follows:

- General Liability - $1,000,000 each occurrence: $2,000,000 general aggregate;
- Personal and Advertising Injury - $1,000,000;
- Automobile Liability - $1,000,000 combined single limit;
- Excess Liability Umbrella - $5,000,000 aggregate; $5,000,000 each occurrence;
- Worker's Compensation Insurance - statutory limits; and
- Professional Liability - $5,000,000 aggregate, $5,000,000 per claim

Pace will, at Client's request, submit certificates of insurance showing limits of coverage.

15. **Amendments/Change Orders** - Any attempt to modify, vary, supplement, or clarify any provision of these Terms is of no effect unless reduced to writing and signed by both Parties. Any such changes may increase the amount due Pace and affect Pace's obligations towards Client (see Section 2. Warranty).

16. **Confidentiality** - Each party agrees that if, during the performance of the Project, it becomes aware of any confidential or proprietary information of the other, it will not disclose such information except to those employees, subcontractors, or agents who have expressly agreed to maintain confidentiality.

17. **Miscellaneous Provisions** -
a) These Terms supersede all prior negotiations and agreements, written or oral, between Pace and Client with respect to this matter; in no event will other terms - excepting those contained in any individual task order(s) relating to this matter - be considered part of these Terms.
b) In the abscence of an executed agreement between the Parties, the delivery of any sample(s) to a Pace laboratory will constitute

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acceptance of these Terms by Client.
c) These Terms shall be construed and interpreted in accordance with the laws of the State of Minnesota without giving effect to the principles of conflicts of law thereof.
d) Client may publicly identify Pace's role as its testing laboratory so long as it immediately retracts or eliminates all such references upon termination of these Terms or Pace's written request.
e) For purposes of these Terms, the Parties may use and rely upon electronic signatures and documents for the execution and delivery of these Terms and any amendments, notices, records, disclosures, or other documents of any type sent or received in accordance with these Terms.
f) Pace is an independent contractor; no employer/employee relationship shall arise as a result of the Project.
g) These Terms shall be binding upon, and inure to the benefit of, the Parties and their respective successors and assigns.

Detection Limits

PASI Kansas Laboratory

For Acode: 3000 W28 300.0 IC Anions 28 Days

ID	Limits Type	Matrix	Analytical Method	Preparation Method	Sample Type	Instr. Name	Effective Date	Stop Date	Other Criteria
40514	MDL	Water	EPA 300.0				2/8/2017	2/8/2018	

#	Analyte	CAS Number	MDL	Units
1	Bromide	24959-67-9	0.5	mg/L
2	Chloride	16887-00-6	0.5	mg/L
3	Fluoride	16984-48-8	0.1	mg/L
4	Sulfate	14808-79-8	0.5	mg/L

Detection Limits

PASI Kansas Laboratory

For Acode: **2540C W** **2540C Total Dissolved Solids**

ID	Limits Type	Matrix	Analytical Method	Preparation Method	Sample Type	Instr. Name	Effective Date	Stop Date	Other Criteria
9753	MDL	Water	SM 2540C				4/1/2007		

#	Analyte	CAS Number	MDL	Units
1	Total Dissolved Solids		5	mg/L

Detection Limits

PASI Kansas Laboratory

For Acode: **3501 W** **350.1 Ammonia**

ID	Limits Type	Matrix	Analytical Method	Preparation Method	Sample Type	Instr. Name	Effective Date	Stop Date	Other Criteria
40251	MDL	Water	EPA 350.1			60WTA0	9/26/2016		

#	Analyte	CAS Number	MDL	Units
1	Nitrogen, Ammonia	7664-41-7	0.0132	mg/L

Detection Limits

PASI Kansas Laboratory

For Acode: 3532 W **353.2 Nitrogen, NO2/NO3 unpres**

ID	Limits Type	Matrix	Analytical Method	Preparation Method	Sample Type	Instr. Name	Effective Date	Stop Date	Other Criteria
23288	MDL	Water	EPA 353.2			60WTAB	2/11/2016		

#	Analyte	CAS Number	MDL	Units
1	Nitrogen, NO2 plus NO3		0.012	mg/L
2	Nitrogen, Nitrate		0.012	mg/L
3	Nitrogen, Nitrite		0.0103	mg/L

							LCS		
Matrix	Method	Analyte	CAS Number	RL	MDL	Units	Recovery Low	Recovery High	Units
Soil	6010B	Aluminum	7429-90-5	7.5	2.0	mg/kg	80	120	%
Soil	6010B	Antimony	7440-36-0	1.0	0.39	mg/kg	80	120	%
Soil	6010B	Arsenic	7440-38-2	1.0	0.41	mg/kg	80	120	%
Soil	6010B	Barium	7440-39-3	1.0	0.031	mg/kg	80	120	%
Soil	6010B	Beryllium	7440-41-7	0.10	0.027	mg/kg	80	120	%
Soil	6010B	Boron	7440-42-8	10	0.54	mg/kg	80	120	%
Soil	6010B	Cadmium	7440-43-9	0.50	0.037	mg/kg	80	120	%
Soil	6010B	Calcium	7440-70-2	10	2.1	mg/kg	80	120	%
Soil	6010B	Chromium	7440-47-3	0.50	0.10	mg/kg	80	120	%
Soil	6010B	Cobalt	7440-48-4	0.50	0.039	mg/kg	80	120	%
Soil	6010B	Copper	7440-50-8	1.0	0.49	mg/kg	80	120	%
Soil	6010B	Iron	7439-89-6	5.0	0.91	mg/kg	80	120	%
Soil	6010B	Lead	7439-92-1	1.0	0.21	mg/kg	80	120	%
Soil	6010B	Magnesium	7439-95-4	5.0	1.7	mg/kg	80	120	%
Soil	6010B	Manganese	7439-96-5	0.50	0.045	mg/kg	80	120	%
Soil	6010B	Molybdenum	7439-98-7	2.0	0.050	mg/kg	80	120	%
Soil	6010B	Nickel	7440-02-0	0.50	0.10	mg/kg	80	120	%
Soil	6010B	Potassium	7440-09-7	50	5.7	mg/kg	80	120	%
Soil	6010B	Selenium	7782-49-2	1.5	0.75	mg/kg	80	120	%
Soil	6010B	Silver	7440-22-4	0.7	0.17	mg/kg	80	120	%
Soil	6010B	Sodium	7440-23-5	50	2.3	mg/kg	80	120	%
Soil	6010B	Strontium	7440-24-6	1.0	0.027	mg/kg	80	120	%
Soil	6010B	Thallium	7440-28-0	2.0	0.28	mg/kg	80	120	%
Soil	6010B	Tin	7440-31-5	5.0	0.30	mg/kg	80	120	%
Soil	6010B	Titanium	7440-32-6	1.0	0.15	mg/kg	80	120	%
Soil	6010B	Vanadium	7440-62-2	1.0	0.39	mg/kg	80	120	%
Soil	6010B	Zinc	7440-66-6	10	0.26	mg/kg	80	120	%
Water	6010B	Aluminum	7429-90-5	75	28.8	ug/L	80	120	%
Water	6010B	Antimony	7440-36-0	10	3.4	ug/L	80	120	%
Water	6010B	Arsenic	7440-38-2	10	4.2	ug/L	80	120	%
Water	6010B	Barium	7440-39-3	10	0.91	ug/L	80	120	%

Water	6010B	Beryllium	7440-41-7	1.0	0.16	ug/L	80	120	%
Water	6010B	Boron	7440-42-8	100	3.5	ug/L	80	120	%
Water	6010B	Cadmium	7440-43-9	5.0	0.64	ug/L	80	120	%
Water	6010B	Calcium	7440-70-2	100	36.0	ug/L	80	120	%
Water	6010B	Chromium	7440-47-3	5.0	0.72	ug/L	80	120	%
Water	6010B	Cobalt	7440-48-4	5.0	0.73	ug/L	80	120	%
Water	6010B	Copper	7440-50-8	10	4.8	ug/L	80	120	%
Water	6010B	Iron	7439-89-6	50	12.4	ug/L	80	120	%
Water	6010B	Lead	7439-92-1	5.0	2.4	ug/L	80	120	%
Water	6010B	Lithium	7439-93-2	10	2.9	ug/L	80	120	%
Water	6010B	Magnesium	7439-95-4	50	15.4	ug/L	80	120	%
Water	6010B	Manganese	7439-96-5	5.0	1.8	ug/L	80	120	%
Water	6010B	Molybdenum	7439-98-7	20	1.3	ug/L	80	120	%
Water	6010B	Nickel	7440-02-0	5.0	2.2	ug/L	80	120	%
Water	6010B	Potassium	7440-09-7	500	52.3	ug/L	80	120	%
Water	6010B	Selenium	7782-49-2	15	3.4	ug/L	80	120	%
Water	6010B	Silicon	7440-21-3	500	15.0	ug/L	80	120	%
Water	6010B	Silver	7440-22-4	7.0	1.9	ug/L	80	120	%
Water	6010B	Sodium	7440-23-5	500	28.4	ug/L	80	120	%
Water	6010B	Strontium	7440-24-6	10	0.75	ug/L	80	120	%
Water	6010B	Thallium	7440-28-0	20	3.1	ug/L	80	120	%
Water	6010B	Tin	7440-31-5	50	2.8	ug/L	80	120	%
Water	6010B	Titanium	7440-32-6	10	1.6	ug/L	80	120	%
Water	6010B	Vanadium	7440-62-2	10	2.7	ug/L	80	120	%
Water	6010B	Zinc	7440-66-6	50	11.2	ug/L	80	120	%
Soil	6020A	Aluminum	7429-90-5	0.20	16.2	mg/kg	80	120	%
Soil	6020A	Antimony	7440-36-0	0.05	0.032	mg/kg	80	120	%
Soil	6020A	Arsenic	7440-38-2	1.0	0.12	mg/kg	80	120	%
Soil	6020A	Barium	7440-39-3	1.0	0.13	mg/kg	80	120	%
Soil	6020A	Beryllium	7440-41-7	0.50	0.053	mg/kg	80	120	%
Soil	6020A	Cadmium	7440-43-9	0.50	0.075	mg/kg	80	120	%
Soil	6020A	Chromium	7440-47-3	1.0	0.13	mg/kg	80	120	%
Soil	6020A	Cobalt	7440-48-4	1.0	0.050	mg/kg	80	120	%
Soil	6020A	Copper	7440-50-8	2.0	0.13	mg/kg	80	120	%

Soil	6020A	Iron	7439-89-6	50	1.6	mg/kg	80	120	%
Soil	6020A	Lead	7439-92-1	1.0	0.076	mg/kg	80	120	%
Soil	6020A	Manganese	7439-96-5	1.0	0.087	mg/kg	80	120	%
Soil	6020A	Molybdenum	7439-98-7	1.0	0.058	mg/kg	80	120	%
Soil	6020A	Nickel	7440-02-0	1.0	0.26	mg/kg	80	120	%
Soil	6020A	Selenium	7782-49-2	1.0	0.28	mg/kg	80	120	%
Soil	6020A	Silver	7440-22-4	0.50	0.026	mg/kg	80	120	%
Soil	6020A	Strontium	7440-24-6	1.0	0.10	mg/kg	80	120	%
Soil	6020A	Thallium	7440-28-0	1.0	0.013	mg/kg	80	120	%
Soil	6020A	Tin	7440-31-5	1.0	0.40	mg/kg	80	120	%
Soil	6020A	Titanium	7440-32-6	2.0	0.66	mg/kg	80	120	%
Soil	6020A	Vanadium	7440-62-2	2.0	0.19	mg/kg	80	120	%
Soil	6020A	Zinc	7440-66-6	20.0	10.0	mg/kg	80	120	%
Water	6020A	Aluminum	7429-90-5	50	2.2	ug/L	80	120	%
Water	6020A	Antimony	7440-36-0	1.0	0.026	ug/L	80	120	%
Water	6020A	Arsenic	7440-38-2	1.0	0.052	ug/L	80	120	%
Water	6020A	Barium	7440-39-3	1.0	0.095	ug/L	80	120	%
Water	6020A	Beryllium	7440-41-7	0.50	0.012	ug/L	80	120	%
Water	6020A	Cadmium	7440-43-9	0.50	0.018	ug/L	80	120	%
Water	6020A	Chromium	7440-47-3	1.0	0.054	ug/L	80	120	%
Water	6020A	Cobalt	7440-48-4	1.0	0.014	ug/L	80	120	%
Water	6020A	Copper	7440-50-8	1.0	0.045	ug/L	80	120	%
Water	6020A	Iron	7439-89-6	50	10	ug/L	80	120	%
Water	6020A	Lead	7439-92-1	1.0	0.033	ug/L	80	120	%
Water	6020A	Manganese	7439-96-5	1.0	0.070	ug/L	80	120	%
Water	6020A	Molybdenum	7439-98-7	1.0	0.058	ug/L	80	120	%
Water	6020A	Nickel	7440-02-0	1.0	0.070	ug/L	80	120	%
Water	6020A	Selenium	7782-49-2	1.0	0.086	ug/L	80	120	%
Water	6020A	Silver	7440-22-4	0.50	0.016	ug/L	80	120	%
Water	6020A	Strontium	7440-24-6	1.0	0.071	ug/L	80	120	%
Water	6020A	Thallium	7440-28-0	1.0	0.037	ug/L	80	120	%
Water	6020A	Tin	7440-31-5	5.0	0.11	ug/L	80	120	%
Water	6020A	Vanadium	7440-62-2	1.0	0.35	ug/L	80	120	%
Water	6020A	Zinc	7440-66-6	10	0.53	ug/L	80	120	%

Water	7470A	Mercury	7439-97-6	0.20	0.055	ug/L	80	120	%
Soil	7471A	Mercury	7439-97-6	0.05	0.0063	mg/kg	80	120	%
Soil	8260B	1,1,1,2-Tetrachloroethane	630-20-6	5.0	2.5	ug/kg	79	124	%
Soil	8260B	1,1,1-Trichloroethane	71-55-6	5.0	2.5	ug/kg	72	131	%
Soil	8260B	1,1,2,2-Tetrachloroethane	79-34-5	5.0	2.5	ug/kg	64	129	%
Soil	8260B	1,1,2-Trichloroethane	79-00-5	5.0	2.5	ug/kg	77	115	%
Soil	8260B	1,1,2-Trichlorotrifluoroethane	76-13-1	5.0	2.5		71	127	%
Soil	8260B	1,1-Dichloroethane	75-34-3	5.0	2.5	ug/kg	70	126	%
Soil	8260B	1,1-Dichloroethene	75-35-4	5.0	2.5	ug/kg	64	129	%
Soil	8260B	1,1-Dichloropropene	563-58-6	5.0	2.5	ug/kg	72	129	%
Soil	8260B	1,2,3-Trichlorobenzene	87-61-6	5.0	2.5	ug/kg	70	128	%
Soil	8260B	1,2,3-Trichloropropane	96-18-4	5.0	2.5	ug/kg	68	121	%
Soil	8260B	1,2,4-Trichlorobenzene	120-82-1	5.0	2.5	ug/kg	71	130	%
Soil	8260B	1,2,4-Trimethylbenzene	95-63-6	5.0	2.5	ug/kg	71	121	%
Soil	8260B	1,2-Dibromo-3-chloropropane	96-12-8	10	5.0	ug/kg	63	136	%
Soil	8260B	1,2-Dibromoethane (EDB)	106-93-4	5.0	2.5	ug/kg	80	118	%
Soil	8260B	1,2-Dichlorobenzene	95-50-1	5.0	2.5	ug/kg	77	119	%
Soil	8260B	1,2-Dichloroethane	107-06-2	5.0	2.5	ug/kg	78	115	%
Soil	8260B	1,2-Dichloroethene (Total)	540-59-0	5.0	2.5	ug/kg	74	121	%
Soil	8260B	1,2-Dichloropropane	78-87-5	5.0	2.5	ug/kg	78	116	%
Soil	8260B	1,3,5-Trimethylbenzene	108-67-8	5.0	2.5	ug/kg	70	125	%
Soil	8260B	1,3-Dichlorobenzene	541-73-1	5.0	2.5	ug/kg	75	120	%
Soil	8260B	1,3-Dichloropropane	142-28-9	5.0	2.5	ug/kg	77	117	%
Soil	8260B	1,4-Dichlorobenzene	106-46-7	5.0	2.5	ug/kg	76	120	%
Soil	8260B	2,2-Dichloropropane	594-20-7	5.0	2.5	ug/kg	55	151	%
Soil	8260B	2-Butanone (MEK)	78-93-3	10	5.0	ug/kg	61	125	%
Soil	8260B	2-Chloroethylvinyl ether	110-75-8	5.0	2.5	ug/kg	10	190	%
Soil	8260B	2-Chlorotoluene	95-49-8	5.0	2.5	ug/kg	69	123	%
Soil	8260B	2-Hexanone	591-78-6	20	10	ug/kg	68	125	%
Soil	8260B	4-Chlorotoluene	106-43-4	5.0	2.5	ug/kg	73	123	%
Soil	8260B	4-Methyl-2-pentanone (MIBK)	108-10-1	10	5.0	ug/kg	68	125	%
Soil	8260B	Acetone	67-64-1	20	10	ug/kg	53	130	%
Soil	8260B	Acrolein	107-02-8	100	50	ug/kg	21	166	%
Soil	8260B	Acrylonitrile	107-13-1	100	50	ug/kg	69	120	%

Soil	8260B	Benzene	71-43-2	5.0	2.5	ug/kg	81	115	%
Soil	8260B	Bromobenzene	108-86-1	5.0	2.5	ug/kg	70	128	%
Soil	8260B	Bromochloromethane	74-97-5	5.0	2.5	ug/kg	68	123	%
Soil	8260B	Bromodichloromethane	75-27-4	5.0	2.5	ug/kg	82	121	%
Soil	8260B	Bromoform	75-25-2	5.0	2.5	ug/kg	65	136	%
Soil	8260B	Bromomethane	74-83-9	5.0	2.5	ug/kg	29	146	%
Soil	8260B	Carbon disulfide	75-15-0	5.0	2.5	ug/kg	57	129	%
Soil	8260B	Carbon tetrachloride	56-23-5	5.0	2.5	ug/kg	70	137	%
Soil	8260B	Chlorobenzene	108-90-7	5.0	2.5	ug/kg	79	116	%
Soil	8260B	Chloroethane	75-00-3	5.0	2.5	ug/kg	54	135	%
Soil	8260B	Chloroform	67-66-3	5.0	2.5	ug/kg	72	120	%
Soil	8260B	Chloromethane	74-87-3	5.0	2.5	ug/kg	36	143	%
Soil	8260B	cis-1,2-Dichloroethene	156-59-2	5.0	2.5	ug/kg	74	121	%
Soil	8260B	cis-1,3-Dichloropropene	10061-01-5	5.0	2.5	ug/kg	80	120	%
Soil	8260B	Dibromochloromethane	124-48-1	5.0	2.5	ug/kg	79	125	%
Soil	8260B	Dibromomethane	74-95-3	5.0	2.5	ug/kg	80	116	%
Soil	8260B	Dichlorodifluoromethane	75-71-8	5.0	2.5	ug/kg	10	172	%
Soil	8260B	Diethyl ether (Ethyl ether)	60-29-7	5.0	2.5	ug/kg	70	102	%
Soil	8260B	Diisopropyl ether	108-20-3	5.0	2.5	ug/kg	74	116	%
Soil	8260B	Ethyl tert-butyl ether	637-92-3	5.0	2.5	ug/kg	70	126	%
Soil	8260B	Ethylbenzene	100-41-4	5.0	2.5	ug/kg	76	119	%
Soil	8260B	Hexachloro-1,3-butadiene	87-68-3	5.0	2.5	ug/kg	63	140	%
Soil	8260B	Isopropylbenzene (Cumene)	98-82-8	5.0	2.5	ug/kg	75	127	%
Soil	8260B	m,p-Xylene	179601-23-1	5.0	2.5	ug/kg	75	121	%
Soil	8260B	Methyl acetate	79-20-9	5.0	2.5	ug/kg	66	93	%
Soil	8260B	Methyl tert-butyl ether	1634-04-4	5.0	2.5	ug/kg	68	118	%
Soil	8260B	Methylene chloride	75-09-2	5.0	2.5	ug/kg	65	123	%
Soil	8260B	Naphthalene	91-20-3	10	5.0	ug/kg	68	122	%
Soil	8260B	n-Butylbenzene	104-51-8	5.0	2.5	ug/kg	66	133	%
Soil	8260B	n-Hexane	110-54-3	5.0	2.5	ug/kg	81	123	%
Soil	8260B	n-Propylbenzene	103-65-1	5.0	2.5	ug/kg	69	128	%
Soil	8260B	o-Xylene	95-47-6	5.0	2.5	ug/kg	76	120	%
Soil	8260B	p-Isopropyltoluene	99-87-6	5.0	2.5	ug/kg	69	129	%
Soil	8260B	sec-Butylbenzene	135-98-8	5.0	2.5	ug/kg	66	130	%

Soil	8260B	Styrene	100-42-5	5.0	2.5	ug/kg	78	122	%
Soil	8260B	tert-Amyl methyl ether	994-05-8	5.0	2.5	ug/kg	69	129	%
Soil	8260B	tert-Butyl alcohol	75-65-0	10	5.0	ug/kg	54	129	%
Soil	8260B	tert-Butylbenzene	98-06-6	5.0	2.5	ug/kg	69	128	%
Soil	8260B	Tetrachloroethene	127-18-4	5.0	2.5	ug/kg	71	130	%
Soil	8260B	Toluene	108-88-3	5.0	2.5	ug/kg	77	116	%
Soil	8260B	trans-1,2-Dichloroethene	156-60-5	5.0	2.5	ug/kg	71	124	%
Soil	8260B	trans-1,3-Dichloropropene	10061-02-6	5.0	2.5	ug/kg	77	127	%
Soil	8260B	Trichloroethene	79-01-6	5.0	2.5	ug/kg	69	121	%
Soil	8260B	Trichlorofluoromethane	75-69-4	5.0	2.5	ug/kg	60	148	%
Soil	8260B	Vinyl acetate	108-05-4	100	50	ug/kg	37	126	%
Soil	8260B	Vinyl chloride	75-01-4	5.0	2.5	ug/kg	45	139	%
Soil	8260B	Xylene (Total)	1330-20-7	5.0	2.5	ug/kg	76	121	%
Soil	8260B	1,2-Dichloroethane-d4 (S)	17060-07-0	--	--	--	--	--	--
Soil	8260B	4-Bromofluorobenzene (S)	460-00-4	--	--	--	--	--	--
Soil	8260B	Toluene-d8 (S)	2037-26-5	--	--	--	--	--	--
Water	8260B	1,1,1,2-Tetrachloroethane	630-20-6	1.0	0.15	ug/L	85	113	%
Water	8260B	1,1,1-Trichloroethane	71-55-6	1.0	0.11	ug/L	80	121	%
Water	8260B	1,1,2,2-Tetrachloroethane	79-34-5	1.0	0.15	ug/L	74	124	%
Water	8260B	1,1,2-Trichloroethane	79-00-5	1.0	0.20	ug/L	81	118	%
Water	8260B	1,1,2-Trichlorotrifluoroethane	76-13-1	1.0	0.34	ug/L	79	123	%
Water	8260B	1,1-Dichloroethane	75-34-3	1.0	0.050	ug/L	82	122	%
Water	8260B	1,1-Dichloroethene	75-35-4	1.0	0.20	ug/L	78	123	%
Water	8260B	1,1-Dichloropropene	563-58-6	1.0	0.090	ug/L	82	120	%
Water	8260B	1,2,3-Trichlorobenzene	87-61-6	1.0	0.12	ug/L	71	123	%
Water	8260B	1,2,3-Trichloropropane	96-18-4	2.5	0.19	ug/L	74	122	%
Water	8260B	1,2,3-Trimethylbenzene	526-73-8	1.0	0.62	ug/L	89	116	%
Water	8260B	1,2,4-Trichlorobenzene	120-82-1	1.0	0.10	ug/L	75	122	%
Water	8260B	1,2,4-Trimethylbenzene	95-63-6	1.0	0.090	ug/L	85	116	%
Water	8260B	1,2-Dibromo-3-chloropropane	96-12-8	2.5	0.59	ug/L	58	145	%
Water	8260B	1,2-Dibromoethane (EDB)	106-93-4	1.0	0.17	ug/L	83	118	%
Water	8260B	1,2-Dichlorobenzene	95-50-1	1.0	0.050	ug/L	85	117	%
Water	8260B	1,2-Dichloroethane	107-06-2	1.0	0.12	ug/L	78	117	%
Water	8260B	1,2-Dichloroethene (Total)	540-59-0	1.0	0.28	ug/L	80	119	%

Water	8260B	1,2-Dichloropropane	78-87-5	1.0	0.16	ug/L	81	118	%
Water	8260B	1,3,5-Trimethylbenzene	108-67-8	1.0	0.10	ug/L	83	118	%
Water	8260B	1,3-Dichlorobenzene	541-73-1	1.0	0.070	ug/L	83	115	%
Water	8260B	1,3-Dichloropropane	142-28-9	1.0	0.17	ug/L	85	124	%
Water	8260B	1,4-Dichlorobenzene	106-46-7	1.0	0.060	ug/L	85	115	%
Water	8260B	1-Methylnaphthalene	90-12-0	5.0	0.23	ug/L	59	146	%
Water	8260B	2,2-Dichloropropane	594-20-7	1.0	0.19	ug/L	46	144	%
Water	8260B	2-Butanone (MEK)	78-93-3	10	0.59	ug/L	72	117	%
Water	8260B	2-Chloroethylvinyl ether	110-75-8	10	0.13	ug/L	62	131	%
Water	8260B	2-Chlorotoluene	95-49-8	1.0	0.12	ug/L	82	116	%
Water	8260B	2-Hexanone	591-78-6	10	1.19	ug/L	78	118	%
Water	8260B	2-Methylnaphthalene	91-57-6	5.0	0.23	ug/L	59	146	%
Water	8260B	4-Chlorotoluene	106-43-4	1.0	0.14	ug/L	82	116	%
Water	8260B	4-Methyl-2-pentanone (MIBK)	108-10-1	10	0.42	ug/L	77	124	%
Water	8260B	Acetone	67-64-1	10	1.9	ug/L	66	127	%
Water	8260B	Acetonitrile	75-05-8	10	2.8	ug/L	76	119	%
Water	8260B	Acrolein	107-02-8	100	5.0	ug/L	10	201	%
Water	8260B	Acrylonitrile	107-13-1	20	1.1	ug/L	76	124	%
Water	8260B	Benzene	71-43-2	1.0	0.060	ug/L	82	115	%
Water	8260B	Bromobenzene	108-86-1	1.0	0.10	ug/L	84	114	%
Water	8260B	Bromochloromethane	74-97-5	1.0	0.15	ug/L	76	122	%
Water	8260B	Bromodichloromethane	75-27-4	1.0	0.19	ug/L	83	123	%
Water	8260B	Bromoform	75-25-2	1.0	0.070	ug/L	79	126	%
Water	8260B	Bromomethane	74-83-9	5.0	0.16	ug/L	39	146	%
Water	8260B	Carbon disulfide	75-15-0	5.0	0.12	ug/L	75	121	%
Water	8260B	Carbon tetrachloride	56-23-5	1.0	0.18	ug/L	82	117	%
Water	8260B	Chlorobenzene	108-90-7	1.0	0.21	ug/L	89	114	%
Water	8260B	Chloroethane	75-00-3	1.0	0.15	ug/L	71	133	%
Water	8260B	Chloroform	67-66-3	1.0	0.14	ug/L	78	117	%
Water	8260B	Chloromethane	74-87-3	1.0	0.080	ug/L	19	181	%
Water	8260B	cis-1,2-Dichloroethene	156-59-2	1.0	0.080	ug/L	78	119	%
Water	8260B	cis-1,3-Dichloropropene	10061-01-5	1.0	0.14	ug/L	81	116	%
Water	8260B	Dibromochloromethane	124-48-1	1.0	0.21	ug/L	81	122	%
Water	8260B	Dibromomethane	74-95-3	1.0	0.18	ug/L	79	120	%

Water	8260B	Dichlorodifluoromethane	75-71-8	1.0	0.21	ug/L	64	147	%
Water	8260B	Diethyl ether (Ethyl ether)	60-29-7	1.0	0.28	ug/L	81	115	%
Water	8260B	Diisopropyl ether	108-20-3	1.0	0.080	ug/L	78	122	%
Water	8260B	Ethyl tert-butyl ether	637-92-3	1.0	0.1	ug/L	76	122	%
Water	8260B	Ethylbenzene	100-41-4	1.0	0.18	ug/L	83	112	%
Water	8260B	Hexachloro-1,3-butadiene	87-68-3	1.0	0.18	ug/L	72	122	%
Water	8260B	Iodomethane	74-88-4	10	0.05	ug/L	40	144	%
Water	8260B	Isopropylbenzene (Cumene)	98-82-8	1.0	0.07	ug/L	87	117	%
Water	8260B	m,p-Xylene	179601-23-1	2.0	0.27	ug/L	83	114	%
Water	8260B	Methyl tert-butyl ether	1634-04-4	1.0	0.06	ug/L	73	118	%
Water	8260B	Methylene chloride	75-09-2	1.0	0.15	ug/L	78	127	%
Water	8260B	Naphthalene	91-20-3	10	0.16	ug/L	67	118	%
Water	8260B	n-Butylbenzene	104-51-8	1.0	0.10	ug/L	79	117	%
Water	8260B	n-Heptane	142-82-5	10	0.34	ug/L	69	129	%
Water	8260B	n-Hexane	110-54-3	10	0.24	ug/L	53	143	%
Water	8260B	n-Propylbenzene	103-65-1	1.0	0.10	ug/L	82	117	%
Water	8260B	o-Xylene	95-47-6	1.0	0.15	ug/L	83	114	%
Water	8260B	p-Isopropyltoluene	99-87-6	1.0	0.10	ug/L	85	116	%
Water	8260B	sec-Butylbenzene	135-98-8	1.0	0.050	ug/L	82	112	%
Water	8260B	Styrene	100-42-5	1.0	0.12	ug/L	88	117	%
Water	8260B	tert-Amyl methyl ether	994-05-8	1.0	0.12	ug/L	76	122	%
Water	8260B	tert-Butyl alcohol	75-65-0	10	2.2	ug/L	60	136	%
Water	8260B	tert-Butylbenzene	98-06-6	1.0	0.34	ug/L	85	115	%
Water	8260B	Tetrachloroethene	127-18-4	1.0	0.10	ug/L	80	121	%
Water	8260B	Toluene	108-88-3	1.0	0.17	ug/L	78	113	%
Water	8260B	trans-1,2-Dichloroethene	156-60-5	1.0	0.20	ug/L	79	120	%
Water	8260B	trans-1,3-Dichloropropene	10061-02-6	1.0	0.12	ug/L	81	119	%
Water	8260B	trans-1,4-Dichloro-2-butene	110-57-6	20	0.30	ug/L	66	131	%
Water	8260B	Trichloroethene	79-01-6	1.0	0.17	ug/L	78	118	%
Water	8260B	Trichlorofluoromethane	75-69-4	1.0	0.34	ug/L	80	135	%
Water	8260B	Vinyl acetate	108-05-4	20	0.14	ug/L	60	130	%
Water	8260B	Vinyl chloride	75-01-4	1.0	0.13	ug/L	66	133	%
Water	8260B	Xylene (Total)	1330-20-7	3.0	0.42	ug/L	83	114	%
Water	8260B	1,2-Dichloroethane-d4 (S)	17060-07-0	--	--	--	--	--	--

Water	8260B	4-Bromofluorobenzene (S)	460-00-4	--	--	--	--	--	--
Water	8260B	Toluene-d8 (S)	2037-26-5	--	--	--	--	--	--
Soil	8270C	1,2,4-Trichlorobenzene	120-82-1	330	165	ug/kg	27	115	%
Soil	8270C	1,2-Dichlorobenzene	95-50-1	330	165	ug/kg	27	111	%
Soil	8270C	1,2-Diphenylhydrazine	122-66-7	330	165	ug/kg	40	102	%
Soil	8270C	1,3-Dichlorobenzene	541-73-1	330	165	ug/kg	26	109	%
Soil	8270C	1,4-Dichlorobenzene	106-46-7	330	165	ug/kg	26	109	%
Soil	8270C	1-Methylnaphthalene	90-12-0	330	165	ug/kg	10	154	%
Soil	8270C	2,2'-Oxybis(1-chloropropane)	108-60-1	330	165	ug/kg	40	120	%
Soil	8270C	2,3,4,6-Tetrachlorophenol	58-90-2	330	165	ug/kg	40	95	%
Soil	8270C	2,4,5-Trichlorophenol	95-95-4	330	165	ug/kg	30	128	%
Soil	8270C	2,4,6-Trichlorophenol	88-06-2	330	165	ug/kg	29	128	%
Soil	8270C	2,4-Dichlorophenol	120-83-2	330	165	ug/kg	29	121	%
Soil	8270C	2,4-Dimethylphenol	105-67-9	330	165	ug/kg	29	113	%
Soil	8270C	2,4-Dinitrophenol	51-28-5	1670	835	ug/kg	19	142	%
Soil	8270C	2,4-Dinitrotoluene	121-14-2	330	165	ug/kg	31	135	%
Soil	8270C	2,6-Dinitrotoluene	606-20-2	330	165	ug/kg	31	132	%
Soil	8270C	2-Chloronaphthalene	91-58-7	330	165	ug/kg	29	122	%
Soil	8270C	2-Chlorophenol	95-57-8	330	165	ug/kg	26	111	%
Soil	8270C	2-Methylnaphthalene	91-57-6	330	165	ug/kg	30	121	%
Soil	8270C	2-Methylphenol (o-Cresol)	95-48-7	330	165	ug/kg	26	100	%
Soil	8270C	2-Nitroaniline	88-74-4	660	330	ug/kg	30	132	%
Soil	8270C	2-Nitrophenol	88-75-5	330	165	ug/kg	27	128	%
Soil	8270C	3,3'-Dichlorobenzidine	91-94-1	660	330	ug/kg	18	189	%
Soil	8270C	3,4-Methylphenol (m,p Cresol)	multiple	330	165	ug/kg	22	95	%
Soil	8270C	3-Nitroaniline	99-09-2	660	330	ug/kg	31	149	%
Soil	8270C	4,6-Dinitro-2-methylphenol	534-52-1	1670	835	ug/kg	25	141	%
Soil	8270C	4-Bromophenylphenyl ether	101-55-3	330	165	ug/kg	30	131	%
Soil	8270C	4-Chloro-3-methylphenol	59-50-7	660	330	ug/kg	29	124	%
Soil	8270C	4-Chloroaniline	106-47-8	660	330	ug/kg	26	142	%
Soil	8270C	4-Chlorophenylphenyl ether	7005-72-3	330	165	ug/kg	31	127	%
Soil	8270C	4-Nitroaniline	100-01-6	660	330	ug/kg	29	136	%
Soil	8270C	4-Nitrophenol	100-02-7	1670	835	ug/kg	30	100	%
Soil	8270C	Acenaphthene	83-32-9	330	165	ug/kg	30	127	%

Soil	8270C	Acenaphthylene	208-96-8	330	165	ug/kg	29	126	%
Soil	8270C	Aniline	62-53-3	660	330	ug/kg	26	122	%
Soil	8270C	Anthracene	120-12-7	330	165	ug/kg	32	131	%
Soil	8270C	Azobenzene	103-33-3	330	165	ug/kg	10	168	%
Soil	8270C	Benzidine	92-87-5	1670	835	ug/kg	10	66	%
Soil	8270C	Benzo(a)anthracene	56-55-3	330	165	ug/kg	32	131	%
Soil	8270C	Benzo(a)pyrene	50-32-8	330	165	ug/kg	30	131	%
Soil	8270C	Benzo(b)fluoranthene	205-99-2	330	165	ug/kg	31	134	%
Soil	8270C	Benzo(g,h,i)perylene	191-24-2	330	165	ug/kg	29	133	%
Soil	8270C	Benzo(k)fluoranthene	207-08-9	330	165	ug/kg	30	133	%
Soil	8270C	Benzoic acid	65-85-0	1670	835	ug/kg	10	64	%
Soil	8270C	Benzyl alcohol	100-51-6	660	330	ug/kg	19	106	%
Soil	8270C	bis(2-Chloroethoxy)methane	111-91-1	330	165	ug/kg	29	122	%
Soil	8270C	bis(2-Chloroethyl) ether	111-44-4	330	165	ug/kg	25	122	%
Soil	8270C	bis(2-Ethylhexyl)phthalate	117-81-7	330	165	ug/kg	34	139	%
Soil	8270C	Butylbenzylphthalate	85-68-7	330	165	ug/kg	30	142	%
Soil	8270C	Carbazole	86-74-8	330	165	ug/kg	31	133	%
Soil	8270C	Chrysene	218-01-9	330	165	ug/kg	32	133	%
Soil	8270C	Dibenz(a,h)anthracene	53-70-3	330	165	ug/kg	30	133	%
Soil	8270C	Dibenzofuran	132-64-9	330	165	ug/kg	30	126	%
Soil	8270C	Diethylphthalate	84-66-2	330	165	ug/kg	34	129	%
Soil	8270C	Dimethylphthalate	131-11-3	330	165	ug/kg	34	127	%
Soil	8270C	Di-n-butylphthalate	84-74-2	330	165	ug/kg	35	135	%
Soil	8270C	Di-n-octylphthalate	117-84-0	330	165	ug/kg	31	139	%
Soil	8270C	Fluoranthene	206-44-0	330	165	ug/kg	32	134	%
Soil	8270C	Fluorene	86-73-7	330	165	ug/kg	31	128	%
Soil	8270C	Hexachloro-1,3-butadiene	87-68-3	330	165	ug/kg	25	112	%
Soil	8270C	Hexachlorobenzene	118-74-1	330	165	ug/kg	30	130	%
Soil	8270C	Hexachlorocyclopentadiene	77-47-4	330	165	ug/kg	10	61	%
Soil	8270C	Hexachloroethane	67-72-1	330	165	ug/kg	24	107	%
Soil	8270C	Indeno(1,2,3-cd)pyrene	193-39-5	330	165	ug/kg	30	131	%
Soil	8270C	Isophorone	78-59-1	330	165	ug/kg	29	125	%
Soil	8270C	Naphthalene	91-20-3	330	165	ug/kg	30	118	%
Soil	8270C	Nitrobenzene	98-95-3	330	165	ug/kg	28	123	%

Soil	8270C	N-Nitrosodimethylamine	62-75-9	330	165	ug/kg	10	102	%
Soil	8270C	N-Nitroso-di-n-propylamine	621-64-7	330	165	ug/kg	29	123	%
Soil	8270C	N-Nitrosodiphenylamine	86-30-6	330	165	ug/kg	31	129	%
Soil	8270C	Pentachlorophenol	87-86-5	1670	835	ug/kg	27	136	%
Soil	8270C	Phenanthrene	85-01-8	330	165	ug/kg	32	130	%
Soil	8270C	Phenol	108-95-2	330	165	ug/kg	10	61	%
Soil	8270C	Pyrene	129-00-0	330	165	ug/kg	32	132	%
Soil	8270C	Pyridine	110-86-1	330	165	ug/kg	10	66	%
Soil	8270C	Quinoline	91-22-5	330	165	ug/kg	50	90	%
Soil	8270C	2,4,6-Tribromophenol (S)	118-79-6	--	--	--	--	--	--
Soil	8270C	2-Fluorobiphenyl (S)	321-60-8	--	--	--	--	--	--
Soil	8270C	2-Fluorophenol (S)	367-12-4	--	--	--	--	--	--
Soil	8270C	Nitrobenzene-d5 (S)	4165-60-0	--	--	--	--	--	--
Soil	8270C	Phenol-d6 (S)	13127-88-3	--	--	--	--	--	--
Soil	8270C	Terphenyl-d14 (S)	1718-51-0	--	--	--	--	--	--
Water	8270C	1,2,4-Trichlorobenzene	120-82-1	10	0.52	ug/L	62	98	%
Water	8270C	1,2-Dichlorobenzene	95-50-1	10	0.51	ug/L	61	97	%
Water	8270C	1,2-Diphenylhydrazine	122-66-7	10	0.58	ug/L	68	114	%
Water	8270C	1,3-Dichlorobenzene	541-73-1	10	0.67	ug/L	59	95	%
Water	8270C	1,4-Dichlorobenzene	106-46-7	10	0.62	ug/L	59	96	%
Water	8270C	1-Methylnaphthalene	90-12-0	10	0.57	ug/L	59	107	%
Water	8270C	2,2'-Oxybis(1-chloropropane)	108-60-1	10	0.89	ug/L	58	101	%
Water	8270C	2,3,4,6-Tetrachlorophenol	58-90-2	50	0.56	ug/L	59	117	%
Water	8270C	2,4,5-Trichlorophenol	95-95-4	50	0.76	ug/L	70	108	%
Water	8270C	2,4,6-Trichlorophenol	88-06-2	10	0.62	ug/L	68	108	%
Water	8270C	2,4-Dichlorophenol	120-83-2	10	0.72	ug/L	65	101	%
Water	8270C	2,4-Dimethylphenol	105-67-9	10	1.1	ug/L	57	98	%
Water	8270C	2,4-Dinitrophenol	51-28-5	50	5.0	ug/L	35	142	%
Water	8270C	2,4-Dinitrotoluene	121-14-2	10	0.68	ug/L	70	116	%
Water	8270C	2,6-Dinitrotoluene	606-20-2	10	0.64	ug/L	69	113	%
Water	8270C	2-Chloronaphthalene	91-58-7	10	0.57	ug/L	66	104	%
Water	8270C	2-Chlorophenol	95-57-8	10	0.67	ug/L	60	96	%
Water	8270C	2-Methylnaphthalene	91-57-6	10	0.68	ug/L	59	111	%
Water	8270C	2-Methylphenol (o-Cresol)	95-48-7	10	0.56	ug/L	51	89	%

Water	8270C	2-Nitroaniline	88-74-4	50	0.64	ug/L	67	117	%
Water	8270C	2-Nitrophenol	88-75-5	10	0.60	ug/L	60	118	%
Water	8270C	3,3'-Dichlorobenzidine	91-94-1	20	5.0	ug/L	22	241	%
Water	8270C	3,4-Methylphenol (m,p Cresol)	multiple	10	0.73	ug/L	44	85	%
Water	8270C	3-Nitroaniline	99-09-2	50	0.69	ug/L	34	190	%
Water	8270C	4,6-Dinitro-2-methylphenol	534-52-1	50	0.62	ug/L	40	151	%
Water	8270C	4-Bromophenylphenyl ether	101-55-3	10	0.71	ug/L	69	109	%
Water	8270C	4-Chloro-3-methylphenol	59-50-7	20	10	ug/L	66	103	%
Water	8270C	4-Chloroaniline	106-47-8	20	0.70	ug/L	13	204	%
Water	8270C	4-Chlorophenylphenyl ether	7005-72-3	10	0.70	ug/L	69	106	%
Water	8270C	4-Nitroaniline	100-01-6	50	0.68	ug/L	68	118	%
Water	8270C	4-Nitrophenol	100-02-7	50	25	ug/L	13	63	%
Water	8270C	Acenaphthene	83-32-9	10	0.51	ug/L	68	105	%
Water	8270C	Acenaphthylene	208-96-8	10	0.55	ug/L	66	109	%
Water	8270C	Aniline	62-53-3	20	0.55	ug/L	34	123	%
Water	8270C	Anthracene	120-12-7	10	0.67	ug/L	70	111	%
Water	8270C	Azobenzene	103-33-3	10	0.58	ug/L	30	156	%
Water	8270C	Benzidine	92-87-5	50	1.1	ug/L	10	75	%
Water	8270C	Benzo(a)anthracene	56-55-3	10	0.60	ug/L	71	111	%
Water	8270C	Benzo(a)pyrene	50-32-8	10	0.84	ug/L	70	111	%
Water	8270C	Benzo(b)fluoranthene	205-99-2	10	0.53	ug/L	69	115	%
Water	8270C	Benzo(g,h,i)perylene	191-24-2	10	0.70	ug/L	65	117	%
Water	8270C	Benzo(k)fluoranthene	207-08-9	10	0.84	ug/L	69	113	%
Water	8270C	Benzoic acid	65-85-0	50	0.82	ug/L	10	69	%
Water	8270C	Benzyl alcohol	100-51-6	20	0.62	ug/L	32	115	%
Water	8270C	Biphenyl	92-52-4	10	5.0	ug/L	50	150	%
Water	8270C	bis(2-Chloroethoxy)methane	111-91-1	10	0.51	ug/L	65	105	%
Water	8270C	bis(2-Chloroethyl)ether	111-44-4	10	0.59	ug/L	63	104	%
Water	8270C	bis(2-Chloroisopropyl) ether	39638-32-9	10	0.89	ug/L	55	115	%
Water	8270C	bis(2-ethylhexyl)adipate	103-23-1	10	0.78	ug/L	56	120	%
Water	8270C	bis(2-Ethylhexyl)phthalate	117-81-7	10	1.9	ug/L	69	122	%
Water	8270C	Butylbenzylphthalate	85-68-7	10	0.60	ug/L	69	121	%
Water	8270C	Carbazole	86-74-8	10	0.56	ug/L	69	112	%
Water	8270C	Chrysene	218-01-9	10	0.68	ug/L	71	111	%

Water	8270C	Dibenz(a,h)anthracene	53-70-3	10	0.68	ug/L	68	114	%
Water	8270C	Dibenzofuran	132-64-9	10	0.59	ug/L	69	106	%
Water	8270C	Diethylphthalate	84-66-2	10	0.57	ug/L	69	110	%
Water	8270C	Dimethylphthalate	131-11-3	10	0.57	ug/L	68	108	%
Water	8270C	Di-n-butylphthalate	84-74-2	10	0.56	ug/L	70	117	%
Water	8270C	Di-n-octylphthalate	117-84-0	10	0.53	ug/L	68	124	%
Water	8270C	Fluoranthene	206-44-0	10	0.56	ug/L	71	112	%
Water	8270C	Fluorene	86-73-7	10	0.52	ug/L	69	107	%
Water	8270C	Hexachloro-1,3-butadiene	87-68-3	10	0.98	ug/L	57	97	%
Water	8270C	Hexachlorobenzene	118-74-1	10	5.0	ug/L	68	110	%
Water	8270C	Hexachlorocyclopentadiene	77-47-4	10	0.74	ug/L	19	59	%
Water	8270C	Hexachloroethane	67-72-1	10	0.74	ug/L	56	96	%
Water	8270C	Indeno(1,2,3-cd)pyrene	193-39-5	10	0.72	ug/L	67	114	%
Water	8270C	Isophorone	78-59-1	10	0.50	ug/L	66	106	%
Water	8270C	Naphthalene	91-20-3	10	0.62	ug/L	65	101	%
Water	8270C	Nitrobenzene	98-95-3	10	0.70	ug/L	62	108	%
Water	8270C	N-Nitrosodimethylamine	62-75-9	10	0.55	ug/L	10	113	%
Water	8270C	N-Nitroso-di-n-propylamine	621-64-7	10	0.61	ug/L	64	108	%
Water	8270C	N-Nitrosodiphenylamine	86-30-6	10	0.55	ug/L	69	108	%
Water	8270C	Pentachlorophenol	87-86-5	50	0.59	ug/L	58	126	%
Water	8270C	Phenanthrene	85-01-8	10	0.65	ug/L	69	111	%
Water	8270C	Phenol	108-95-2	10	5.0	ug/L	15	57	%
Water	8270C	Pyrene	129-00-0	10	0.63	ug/L	71	113	%
Water	8270C	Pyridine	110-86-1	10	5.0	ug/L	10	69	%
Water	8270C	2,4,6-Tribromophenol (S)	118-79-6	--	--	--	--	--	--
Water	8270C	2-Fluorobiphenyl (S)	321-60-8	--	--	--	--	--	--
Water	8270C	2-Fluorophenol (S)	367-12-4	--	--	--	--	--	--
Water	8270C	Nitrobenzene-d5 (S)	4165-60-0	--	--	--	--	--	--
Water	8270C	Phenol-d6 (S)	13127-88-3	--	--	--	--	--	--
Water	8270C	Terphenyl-d14 (S)	1718-51-0	--	--	--	--	--	--
Water	8260B	LRH (C5-C8)	N/A	0.050	0.025	mg/L	80	120	%
Soil	8260B	LRH (C5-C8)	N/A	25.0	4.1	mg/kg	80	120	%
Soil	6020A	Uranium-238	7440-61-1	1.0	0.0030	mg/kg	80	120	%

MS / MSD				Surrogates		
Recovery Low	Recovery High	MS/MSD RPD	Units	Recovery Low	Recovery High	Units
75	125	20	%	--	--	--
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10	142	44	%	--	--	--
45	127	37	%	--	--	--
10	154	51	%	--	--	--
10	140	42	%	--	--	--
51	177	50	%	--	--	--
30	132	32	%	--	--	--
42	130	35	%	--	--	--
39	124	35	%	--	--	--
10	141	52	%	--	--	--
10	146	48	%	--	--	--
10	141	58	%	--	--	--
10	138	50	%	--	--	--
10	154	51	%	--	--	--
13	143	39	%	--	--	--
10	145	53	%	--	--	--
19	138	35	%	--	--	--
11	146	33	%	--	--	--
21	131	34	%	--	--	--
10	137	42	%	--	--	--
10	140	54	%	--	--	--
10	138	40	%	--	--	--
10	143	52	%	--	--	--
26	145	35	%	--	--	--
10	146	50	%	--	--	--
10	202	50	%	--	--	--
10	141	48	%	--	--	--
10	150	44	%	--	--	--
10	136	43	%	--	--	--
10	147	39	%	--	--	--
10	151	43	%	--	--	--
10	164	50	%	--	--	--
10	162	31	%	--	--	--

34	137	31	%	--	--	--
10	155	48	%	--	--	--
10	143	38	%	--	--	--
13	141	36	%	--	--	--
10	148	45	%	--	--	--
10	136	43	%	--	--	--
30	125	35	%	--	--	--
38	135	37	%	--	--	--
10	143	41	%	--	--	--
19	138	35	%	--	--	--
23	136	36	%	--	--	--
16	133	51	%	--	--	--
25	133	34	%	--	--	--
11	137	40	%	--	--	--
10	148	43	%	--	--	--
11	139	36	%	--	--	--
10	153	42	%	--	--	--
70	110	50	%	--	--	--
26	130	37	%	--	--	--
16	147	55	%	--	--	--
11	150	33	%	--	--	--
10	141	51	%	--	--	--
10	142	44	%	--	--	--
10	157	38	%	--	--	--
12	115	50	%	--	--	--
18	140	34	%	--	--	--
19	136	36	%	--	--	--
10	171	46	%	--	--	--
10	139	50	%	--	--	--
29	183	21	%	--	--	--
10	138	42	%	--	--	--
10	156	35	%	--	--	--
10	140	51	%	--	--	--
10	138	48	%	--	--	--

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18	146	38	%	--	--	--
10	140	44	%	--	--	--
15	143	39	%	--	--	--
20	142	34	%	--	--	--
34	129	34	%	--	--	--
10	145	41	%	--	--	--
13	144	35	%	--	--	--
36	147	38	%	--	--	--
10	128	35	%	--	--	--
23	132	33	%	--	--	--
10	155	38	%	--	--	--
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77	117	12	%	--	--	--
49	167	11	%	--	--	--
75	118	17	%	--	--	--
76	116	13	%	--	--	--
84	129	13	%	--	--	--
82	127	15	%	--	--	--
79	136	14	%	--	--	--
82	128	11	%	--	--	--
65	121	22	%	--	--	--
67	124	19	%	--	--	--
85	119	13	%			
67	121	16	%	--	--	--
66	133	10	%	--	--	--
59	131	22	%	--	--	--
64	127	52	%	--	--	--
76	120	11	%	--	--	--
58	133	14	%	--	--	--
80	124	12	%	--	--	--

81	117	11	%	--	--	--
61	140	21	%	--	--	--
79	114	11	%	--	--	--
73	124	13	%	--	--	--
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46	139	61	%	--	--	--
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64	114	21	%	--	--	--
10	136	15	%	--	--	--
71	128	9	%	--	--	--
71	113	15	%	--	--	--
46	141	60	%	--	--	--
73	123	21	%	--	--	--
64	127	14	%	--	--	--
61	113	33	%	--	--	--
61	116	35	%	--	--	--
27	199	33	%	--	--	--
74	118	14	%	--	--	--
55	145	18	%	--	--	--
75	121	12	%	--	--	--
69	124	14	%	--	--	--
81	120	11	%	--	--	--
72	117	16	%	--	--	--
39	145	37	%	--	--	--
82	129	11	%	--	--	--
85	125	11	%	--	--	--
87	115	10	%	--	--	--
62	157	20	%	--	--	--
79	117	12	%	--	--	--
22	194	59	%	--	--	--
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70	117	12	%	--	--	--
56	135	14	%	--	--	--
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48	164	13	%	--	--	--
72	119	10	%	--	--	--
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45	152	11	%	--	--	--
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73	128	12	%	--	--	--
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38	85	21	%	--	--	--
59	107	20	%	--	--	--
34	118	23	%	--	--	--
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41	116	19	%	--	--	--
10	159	23	%	--	--	--
43	109	16	%	--	--	--
28	126	20	%	--	--	--
10	62	20	%	--	--	--
59	97	20	%	--	--	--

33	111	21	%	--	--	--
40	160	20	%	--	--	--
54	103	18	%	--	--	--
40	100	20	%	--	--	--
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23	65	20	%	--	--	--
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55	102	15	%	--	--	--
33	133	21	%	--	--	--
56	103	18	%	--	--	--
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53	110	20	%	--	--	--
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31	109	30	%	--	--	--
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53	129	40	%	--	--	--
38	98	32	%	--	--	--
34	102	31	%	--	--	--
39	113	44	%	--	--	--
31	97	21	%	--	--	--
11	140	30	%	--	--	--
35	122	30	%	--	--	--
36	120	33	%	--	--	--
33	114	34	%	--	--	--
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41	123	31	%	--	--	--
42	111	26	%	--	--	--
34	99	39	%	--	--	--
41	108	27	%	--	--	--
29	94	29	%	--	--	--

44	126	27	%	--	--	--
16	143	28	%	--	--	--
10	220	83	%	--	--	--
23	90	30	%	--	--	--
14	159	26	%	--	--	--
10	155	22	%	--	--	--
38	127	29	%	--	--	--
36	119	27	%	--	--	--
10	159	35	%	--	--	--
43	113	23	%	--	--	--
10	149	36	%	--	--	--
10	67	31	%	--	--	--
42	112	24	%	--	--	--
12	126	42	%	--	--	--
34	123	30	%	--	--	--
44	120	28	%	--	--	--
37	141	65	%	--	--	--
10	22	30	%	--	--	--
47	118	29	%	--	--	--
45	117	31	%	--	--	--
30	140	33	%	--	--	--
42	118	32	%	--	--	--
30	129	27	%	--	--	--
10	91	18	%	--	--	--
14	98	34	%	--	--	--
50	150	30	%	--	--	--
39	113	27	%	--	--	--
36	112	29	%	--	--	--
31	119	29	%	--	--	--
42	120	20	%	--	--	--
52	129	29	%	--	--	--
45	139	25	%	--	--	--
42	122	34	%	--	--	--
46	118	34	%	--	--	--

44	117	30	%	--	--	--
39	115	24	%	--	--	--
50	116	23	%	--	--	--
48	114	26	%	--	--	--
50	123	24	%	--	--	--
49	137	28	%	--	--	--
45	118	25	%	--	--	--
40	117	24	%	--	--	--
32	104	30	%	--	--	--
43	117	28	%	--	--	--
10	87	39	%	--	--	--
29	105	32	%	--	--	--
45	115	30	%	--	--	--
45	105	27	%	--	--	--
37	109	27	%	--	--	--
24	130	29	%	--	--	--
32	84	14	%	--	--	--
18	126	29	%	--	--	--
28	136	24	%	--	--	--
22	147	20	%	--	--	--
38	126	28	%	--	--	--
10	49	36	%	--	--	--
45	126	30	%	--	--	--
10	72	76	%	--	--	--
--	--	--	--	10	169	%
--	--	--	--	24	123	%
--	--	--	--	13	73	%
--	--	--	--	26	105	%
--	--	--	--	10	63	%
--	--	--	--	43	123	%
70	130	25	%	--	--	--
70	130	25	%	--	--	--
75	125	20	%	--	--	--

eurofins | Lancaster Laboratories Environmental

Group Analysis	Analyte	CASNumber	Analytical Method Used	Method Reporting Limit (LOQ; ug/L)
VOCs	Allyl chloride	107-05-1	SW-846 8260B (25 mL purge)	0.5
VOCs	Methacrylonitrile	126-98-7	SW-846 8260B (25 mL purge)	5
VOCs	Methyl Acrylate	96-33-3	SW-846 8260B (25 mL purge)	5

Accredited Laboratory

A2LA has accredited

PACE ANALYTICAL SERVICES, INC.

Lenexa, KS

for technical competence in the field of

Environmental Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of any additional program requirements in the Environmental field. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 5th day of July 2016.

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 2456.01
Valid to July 31, 2018

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

PACE ANALYTICAL SERVICES, INC.
9608 Loiret Blvd
Lenexa, KS 66219
Charles Girgin Phone: (913) 599- 5665
Charles.Girgin@pacelabs.com

ENVIRONMENTAL

Valid To: July 31, 2018 Certificate Number: 2456.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below; and for the test methods applicable to the Wyoming Storage Tank Remediation Laboratory Accreditation Program:

Testing Technologies

ICP-AES Spectrometry, Gas Chromatography, Gas Chromatography / Mass Spectrometry

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste	
		Aqueous	Solid
Metals			
Cadmium	EPA 6010B[1] & C	EPA 6010B[1] & C	EPA 6010B[1] & C
Chromium	EPA 6010B[1] & C	EPA 6010B[1] & C	EPA 6010B[1] & C
Lead	EPA 6010B[1] & C	EPA 6010B[1] & C	EPA 6010B[1] & C
Purgeable Organics (Volatiles)			
Benzene	EPA 8260B	EPA 8260B	EPA 8260B
Diisopropyl ether	EPA 8260B	EPA 8260B	EPA 8260B
1,2-Dichloroethane	EPA 8260B	EPA 8260B	EPA 8260B
Ethanol[1]	EPA 8260B	EPA 8260B	EPA 8260B
Ethyl benzene	EPA 8260B	EPA 8260B	EPA 8260B
Ethyl-t-butyl ether	EPA 8260B	EPA 8260B	EPA 8260B
Ethylene Dibromide (EDB)	EPA 8260B	EPA 8260B	EPA 8260B
Gas Range Organics C_6-C_{10}	EPA 8015C EPA 8260B	EPA 8015C EPA 8260B	EPA 8015C EPA 8260B
Methyl-t-butyl ether (MTBE)	EPA 8260B	EPA 8260B	EPA 8260B
Naphthalene	EPA 8260B	EPA 8260B	EPA 8260B
Toluene	EPA 8260B	EPA 8260B	EPA 8260B
t-amyl methyl ether	EPA 8260B	EPA 8260B	EPA 8260B
t-butyl alcohol	EPA 8260B	EPA 8260B	EPA 8260B
Xylenes, total	EPA 8260B	EPA 8260B	EPA 8260B
1,2-Xylene	EPA 8260B	EPA 8260B	EPA 8260B
1,3-Xylene	EPA 8260B	EPA 8260B	EPA 8260B
1,4-Xylene	EPA 8260B	EPA 8260B	EPA 8260B

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste	
		Aqueous	Solid
Extractable Organics			
Diesel Range Organics C_{10}-C_{32}	EPA 8015C	EPA 8015C	EPA 8015C
Ethylene Dibromide (EDB)	EPA 8011	EPA 8011	EPA 8011

[1] Test Method 6010B and Ethanol are not included under the Wyoming Storage Tank Remediation Laboratory Accreditation Program.

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

PACE ANALYTICAL SERVICES, LLC.
1700 Elm Street SE, Suite 200
Minneapolis, MN 55414
Janielle Ward Phone: 612-607-6352

ENVIRONMENTAL

Valid To: October 31, 2017 Certificate Number: 2926.01

Chemical Tests—Non-environmental testing

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on dietary supplements, food products, and animal feed stocks:

Test and Technology	Test Method(s)
PCB Congeners	EPA 1668A
Dioxins and Furans	EPA 8290A and EPA 1613B

Environmental Tests

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.0 of the DoD Quality Systems Manual for Environmental Laboratories) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Gas Chromatography/Mass Spectrometry, High Resolution Gas Chromatography/Mass Spectrometry, Gas Chromatography-Flame Ionization Detector, Gas Chromatography-Photo Ionization Detector, Inductively Coupled Plasma-Mass Spectrometry, Inductively Coupled Plasma-Mass Spectrometry, Manual Cold Vapor Atomic Absorption, Colorimetric, Electrometric

Parameter/Analyte	**Potable Water**	**Nonpotable Water**	**Solid Hazardous Waste**	**Tissue**
Extractable Organics				
2,3,7,8-TCDD	EPA 1613B	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
2,3,7,8-TCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290
1,2,3,7,8-PeCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290
2,3,4,7,8-PeCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,7,8-PeCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,4,7,8-HxCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,6,7,8-HxCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290

Parameter/Analyte	Potable Water	Nonpotable Water	Solid Hazardous Waste	Tissue
2,3,4,6,7,8-HxCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,7,8,9-HxCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,4,7,8-HxCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,6,7,8-HxCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,7,8,9-HxCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,4,6,7,8-HpCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,4,7,8,9-HpCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
1,2,3,4,6,7,8-HpCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
OCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
OCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total HpCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total HpCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total HxCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total HxCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total PeCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total PeCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total TCDD	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290
Total TCDF	----------	EPA 1613B/8290A/8290	EPA 1613B/8290A/8290	EPA 1613B/8290A/ 8290

Parameter/Analyte	PCB	Nonpotable Water	Solid Hazardous Waste	Tissue
Extractable Organics PCB Congeners				
2-Chlorobiphenyl	PCB-1	EPA 1668A	EPA 1668A	EPA 1668A
3-Chlorobiphenyl	PCB-2	EPA 1668A	EPA 1668A	EPA 1668A
4-Chlorobiphenyl	PCB-3	EPA 1668A	EPA 1668A	EPA 1668A
2,2'-Dichlorobiphenyl	PCB-4	EPA 1668A	EPA 1668A	EPA 1668A
2,6-Dichlorobiphenyl	PCB-10	EPA 1668A	EPA 1668A	EPA 1668A
2,5-Dichlorobiphenyl	PCB-9	EPA 1668A	EPA 1668A	EPA 1668A
2,4-Dichlorobiphenyl	PCB-7	EPA 1668A	EPA 1668A	EPA 1668A
2,3'-Dichlorobiphenyl	PCB-6	EPA 1668A	EPA 1668A	EPA 1668A
2,3-Dichlorobiphenyl	PCB-5	EPA 1668A	EPA 1668A	EPA 1668A
2,4'-Dichlorobiphenyl	PCB-8	EPA 1668A	EPA 1668A	EPA 1668A
3,5-Dichlorobiphenyl	PCB-14	EPA 1668A	EPA 1668A	EPA 1668A
3,3'-Dichlorobiphenyl	PCB-11	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(13/12)	PCB-(13/12)	EPA 1668A	EPA 1668A	EPA 1668A
4,4'-Dichlorobiphenyl	PCB-15	EPA 1668A	EPA 1668A	EPA 1668A
2,2',6-Trichlorobiphenyl	PCB-19	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(30/18)	PCB-(30/18)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4-Trichlorobiphenyl	PCB-17	EPA 1668A	EPA 1668A	EPA 1668A
2,3',6-Trichlorobiphenyl	PCB-27	EPA 1668A	EPA 1668A	EPA 1668A
2,3,6-Trichlorobiphenyl	PCB-24	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3-Trichlorobiphenyl	PCB-16	EPA 1668A	EPA 1668A	EPA 1668A
2,4',6-Trichlorobiphenyl	PCB-32	EPA 1668A	EPA 1668A	EPA 1668A
2',3,5-Trichlorobiphenyl	PCB-34	EPA 1668A	EPA 1668A	EPA 1668A
2,3,5-Trichlorobiphenyl	PCB-23	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(26/29)	PCB-(26/29)	EPA 1668A	EPA 1668A	EPA 1668A

Parameter/Analyte	PCB	Nonpotable Water	Solid Hazardous Waste	Tissue
2,3',4-Trichlorobiphenyl	PCB-25	EPA 1668A	EPA 1668A	EPA 1668A
2,4',5-Trichlorobiphenyl	PCB-31	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(28/20)	PCB-(28/20)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(21/33)	PCB-(21/33)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,4'-Trichlorobiphenyl	PCB-22	EPA 1668A	EPA 1668A	EPA 1668A
3,3',5-Trichlorbiphenyl	PCB-36	EPA 1668A	EPA 1668A	EPA 1668A
3,4',5-Trichlorobiphenyl	PCB-39	EPA 1668A	EPA 1668A	EPA 1668A
3,4,5-Trichlorobiphenyl	PCB-38	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4-Trichlorobiphenyl	PCB-35	EPA 1668A	EPA 1668A	EPA 1668A
3,4,4'-Trichlorobiphenyl	PCB-37	EPA 1668A	EPA 1668A	EPA 1668A
2,2',6,6'-Tetrachlorbiphenyl	PCB-54	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(50/53)	PCB-(50/53)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(45/51)	PCB-(45/51)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,6'-Tetrachlorobiphenyl	PCB-46	EPA 1668A	EPA 1668A	EPA 1668A
2,2',5,5'-Tetrachlorobiphenyl	PCB-52	EPA 1668A	EPA 1668A	EPA 1668A
2,3',5',6-Tetrachlorobiphenyl	PCB-(73/43)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(69/49)	PCB-(69/49)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4,5-Tetrachlorobiphenyl	PCB-48	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(44/47/65)	PCB-(44/47/65)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(59/62/75)	PCB-(59/62/75)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4'-Tetrachlorobiphenyl	PCB-42	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(41/40/71)	PCB-(41/40/71)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,4',6-Tetrachlorobiphenyl	PCB-64	EPA 1668A	EPA 1668A	EPA 1668A
2,3',5,5'-Tetrachlorobiphenyl	PCB-72	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,5'-Tetrachlorobiphenyl	PCB-68	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',5-Tetrachlorobiphenyl	PCB-57	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',5'-Tetrachlorobiphenyl	PCB-58	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,5-Tetrachlorobiphenyl	PCB-67	EPA 1668A	EPA 1668A	EPA 1668A
2,3,4',5-Tetrachlorobiphenyl	PCB-63	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(61/70/74/76)	PCB-(61/70/74/76)	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,4'-Tetrachlorobiphenyl	PCB-66	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4-Tetrachlorobiphenyl	PCB-55	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4'-Tetrachlorobiphenyl	PCB-56	EPA 1668A	EPA 1668A	EPA 1668A
2,3,4,4'-Tetrachlorobiphenyl	PCB-60	EPA 1668A	EPA 1668A	EPA 1668A
3,3',5,5'-Tetrachlorobiphenyl	PCB-80	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,5'-Tetrachlorobiphenyl	PCB-79	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,5-Tetrachlorobiphenyl	PCB-78	EPA 1668A	EPA 1668A	EPA 1668A
3,4,4',5-Tetrachlorobiphenyl	PCB-81	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,4'-Tetrachlorobiphenyl	PCB-77	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4,6,6'-Pentachlorobiphenyl	PCB-104	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,6,6'-Pentachlorobiphenyl	PCB-96	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4,5',6-Pentachlorobiphenyl	PCB-103	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,5,6'-Pentachlorobiphenyl	PCB-94	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,5',6-Pentachlorobiphenyl	PCB-95	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(100/93/102/98)	PCB-(100/93/102/98)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(88/91)	PCB-(88/91)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',6-Pentachlorobiphenyl	PCB-84	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,6'-Pentachlorobiphenyl	PCB-89	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,5',6-Pentachlorobiphenyl	PCB-121	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,5,5'-Pentachlorobiphenyl	PCB-92	EPA 1668A	EPA 1668A	EPA 1668A

Parameter/Analyte	PCB	Nonpotable Water	Solid Hazardous Waste	Tissue
PCB-(113/90/101)	PCB-(113/90/101)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',5-Pentachlorobiphenyl	PCB-83	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4,4',5-Pentachlorobiphenyl	PCB-99	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',5,6-Pentachlorobiphenyl	PCB-112	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(108/119/86/97/125/87)	PCB-(108/119/86/97/125/87)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(117/116/85)	PCB-(117/116/85)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(110/115)	PCB-(110/115)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4-Pentachlorobiphenyl	PCB-82	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',5,5'-Pentachlorobiphenyl	PCB-111	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,5,5'-Pentachlorobiphenyl	PCB-120	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(107/124)	PCB-(107/124)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,6-Pentachlorobiphenyl	PCB-109	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,4',5'-Pentachlorobiphenyl	PCB-123	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,5-Pentachlorobiphenyl	PCB-106	EPA 1668A	EPA 1668A	EPA 1668A
2,3',4,4',5-Pentachlorobiphenyl	PCB-118	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4',5'-Pentachlorobiphenyl	PCB-122	EPA 1668A	EPA 1668A	EPA 1668A
2,3,4,4',5-Pentachlorobiphenyl	PCB-114	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4'-Pentachlorobiphenyl	PCB-105	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,5,5'-Pentachlorobiphenyl	PCB-127	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,4',5-Pentachlorobiphenyl	PCB-126	EPA 1668A	EPA 1668A	EPA 1668A
2,2',4,4',6,6'-Hexachlorobiphenyl	PCB-155	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,5,6,6'-Hexachlorobiphenyl	PCB-152	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4',6,6'-Hexachlorobiphenyl	PCB-150	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',6,6'-Hexachlorobiphenyl	PCB-136	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,6,6'-Hexachlorobiphenyl	PCB-145	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4',5,6'-Hexachlorobiphenyl	PCB-148	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(151/135)	PCB-(151/135)	EPA 1668A	EPA 1668A	EPA 1668A
2,2'4,4',5,6'-Hexachlorobiphenyl	PCB-154	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,5',6-Hexachlorobiphenyl	PCB-144	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(147/149)	PCB-(147/149)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(134/143)	PCB-(134/143)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(139/140)	PCB-(139/140)	EPA 1668A	EPA 1668A	EPA 1668A
2,2'3,3',4,6-Hexachlorobiphenyl	PCB-131	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,5,6-Hexachlorobiphenyl	PCB-142	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,6'-Hexachlorobiphenyl	PCB-132	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',5,5'-Hexachlorobiphenyl	PCB-133	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',5,5',6-Hexachlorobiphenyl	PCB-165	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4',5,5'-Hexachlorobiphenyl	PCB-146	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,5',6-Hexachlorobiphenyl	PCB-161	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(153/168)	PCB-(153/168)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,5,5'-Hexachlorobiphenyl	PCB-141	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,5'-Hexachlorobiphenyl	PCB-130	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',5-Hexachlorobiphenyl	PCB-137	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4',5',6-Hexachlorobiphenyl	PCB-164	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(138/163/129)	PCB-(138/163/129)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,5,6-Hexachlorobiphenyl	PCB-160	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4',6-Hexachlorobiphenyl	PCB-158	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(128/166)	PCB-(128/166)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,5,5'-Hexachlorobiphenyl	PCB-159	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4',5,5'-Hexachlorobiphenyl	PCB-162	EPA 1668A	EPA 1668A	EPA 1668A

Parameter/Analyte	PCB	Nonpotable Water	Solid Hazardous Waste	Tissue
2,3',4,4',5,5'-Hexachlorobiphenyl	PCB-167	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(156/157)	PCB-(156/157)	EPA 1668A	EPA 1668A	EPA 1668A
3,3',4,4',5,5'-Hexachlorobiphenyl	PCB-169	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4',5,6,6'-Heptachlorobiphenyl	PCB-188	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',5,6,6'-Heptachlorobiphenyl	PCB-179	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',6,6'-Heptachlorobiphenyl	PCB-184	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,6,6'-Heptachlorobiphenyl	PCB-176	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',5,6'-Heptachlorobiphenyl	PCB-186	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,5,6,6'-Heptachlorobiphenyl	PCB-178	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',5,5',6-Heptachlorobiphenyl	PCB-175	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,5',6-Heptachlorobiphenyl	PCB-187	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4',5,5',6-Heptachlorobiphenyl	PCB-182	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(183/185)	PCB-(183/185)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCB-174	EPA 1668A	EPA 1668A	EPA 1668A
2,2'3,3',4,5',6'-Heptachlorobiphenyl	PCB-177	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',5,6-Heptachlorbiphenyl	PCB-181	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(171/173)	PCB-(171/173)	EPA 1668A	EPA 1668A	EPA 1668A
2,2'3,3',4,5,5'-Heptachlorobiphenyl	PCB-172	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,5,5',6-Heptachlorobiphenyl	PCB-192	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(180/193)	PCB-(180/193)	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4',5',6-Heptachlorobiphenyl	PCB-191	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4',5-Heptachlorobiphenyl	PCB-170	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4',5,6-Heptachlorobiphenyl	PCB-190	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4',5,5-Heptachlorobiphenyl	PCB-189	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',5,5',6,6'-Octachlorobiphenyl	PCB-202	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCB-201	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',5,6,6'-Octachlorobiphenyl	PCB-204	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(197/200)	PCB-(197/200)	EPA 1668A	EPA 1668A	EPA 1668A
PCB-(198/199)	PCB-(198/199)	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4',5,6'-Octachlorobiphenyl	PCB-196	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,4,4',5,5',6-Octachlorobiphenyl	PCB-203	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4',5,6-Octachlorobiphenyl	PCB-195	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCB-194	EPA 1668A	EPA 1668A	EPA 1668A
2,3,3',4,4',5,5',6-Octachlorobiphenyl	PCB-205	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4'5,6,6'-Nonachlorobiphenyl	PCB-208	EPA 1668A	EPA 1668A	EPA 1668A
2,2'3,3',4,4',5,6,6'-Nonachlorobiphenyl	PCB-207	EPA 1668A	EPA 1668A	EPA 1668A
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	PCB-206	EPA 1668A	EPA 1668A	EPA 1668A
Decachlorbiphenyl	PCB-209	EPA 1668A	EPA 1668A	EPA 1668A

In addition, in recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005 and the 2009 TNI Standard) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Parameter/Analyte	Air
Volatile Organic Compounds	
1,1,1-trichloroethane	EPA TO15-1999
1,1,2,2-tetrachloroethane	EPA TO15-1999
1,1,2-trichloroethane	EPA TO15-1999
1,1-dichloroethane	EPA TO15-1999

Parameter/Analyte	Air
1,1-dichloroethene	EPA TO15-1999
1,2,4-trichlorobenzene	EPA TO15-1999
1,2,4-trimethylbenzene	EPA TO15-1999/TO-3
1,2-dibromoethane	EPA TO15-1999
1,2-dichlorobenzene	EPA TO15-1999
1,2-dichloroethane	EPA TO15-1999
1,2-dichloropropane	EPA TO15-1999
1,3,5-trimethylbenzene	EPA TO15-1999/TO-3
1,3-butadiene	EPA TO15-1999
1,3-dichlorobenzene	EPA TO15-1999
1,4-dichlorobenzene	EPA TO15-1999
Benzene	EPA TO15-1999/TO-3
Benzylchloride	EPA TO15-1999
Bromomethane	EPA TO15-1999
Carbon Disulfide	EPA TO15-1999
Carbon Tetrachloride	EPA TO15-1999
Carbon Dioxide	Method 3C
Carbon Monoxide	Method 3C
Chlorobenzene	EPA TO15-1999
Chloroethane (Ethyl Chloride)	EPA TO15-1999
Chloroform	EPA TO15-1999
Chloromethane (Methyl Chloride)	EPA TO15-1999
cis-1,2-dichloroethene	EPA TO15-1999
cis-1,3-dichloropropene	EPA TO15-1999
Dichlorodifluoromethane	EPA TO15-1999
Dichlorotetrafluoroethane Freon 114	EPA TO15-1999
Ethane	EPA TO-3
Ethene	EPA TO-3
Ethylbenzene	EPA TO15-1999/TO-3
Hexachloro-1,3-butadiene	EPA TO15-1999
Isopropylbenzene (Cumene)	EPA TO15-1999
Methane	EPA TO-3/Method 3C
Methylene Chloride	EPA TO15-1999
mp-xylene	EPA TO15-1999/TO-3
o-xylene	EPA TO15-1999/TO-3
Nitrogen	Method 3C
Oxygen	Method 3C
Propylene (methylethylene)	EPA TO15-1999
Styrene	EPA TO15-1999
Tetrachloroethene	EPA TO15-1999
Toluene	EPA TO15-1999/TO-3
Trans-1,3-dichloropropene	EPA TO15-1999
Trichloroethene	EPA TO15-1999
Trichlorofluoromethane (Freon 11)	EPA TO15-1999
Trichlorotrifluoroethane (Freon 113)	EPA TO15-1999
Vinyl Chloride	EPA TO15-1999
2-Butanone (methylethylketone - MEK)	EPA TO15-1999
4-ethyltoluene	EPA TO15-1999
Acetone	EPA TO15-1999

Parameter/Analyte	**Air**
Bromodichloromethane	EPA TO15-1999
Bromoform	EPA TO15-1999
Cyclohexane	EPA TO15-1999
Dibromochloromethane	EPA TO15-1999
Ethanol	EPA TO15-1999
Ethyl Acetate	EPA TO15-1999
Methyl Butyl Ketone	EPA TO15-1999
Methyl Isobutyl Ketone	EPA TO15-1999
Methyl-tert-butyl ether	EPA TO15-1999/TO-3
Naphthalene	EPA TO15-1999
n-heptane	EPA TO15-1999
n-hexane	EPA TO15-1999/TO-3
2-Propanol (IPA)	EPA TO15-1999
Tetrahydrofuran	EPA TO15-1999
Trans-1,2-dichloroethene	EPA TO15-1999
Vinyl Acetate	EPA TO15-1999
THC as Gas	EPA TO-3
Extractable Organics	
2,3,7,8-TCDD	Method 23/TO-9
2,3,7,8-TCDF	Method 23/TO-9
1,2,3,7,8-PeCDF	Method 23/TO-9
2,3,4,7,8-PeCDF	Method 23/TO-9
1,2,3,7,8-PeCDD	Method 23/TO-9
1,2,3,4,7,8-HxCDF	Method 23/TO-9
1,2,3,6,7,8-HxCDF	Method 23/TO-9
2,3,4,6,7,8-HxCDF	Method 23/TO-9
1,2,3,7,8,9-HxCDF	Method 23/TO-9
1,2,3,4,7,8-HxCDD	Method 23/TO-9
1,2,3,6,7,8-HxCDD	Method 23/TO-9
1,2,3,7,8,9-HxCDD	Method 23/TO-9
1,2,3,4,6,7,8-HpCDF	Method 23/TO-9
1,2,3,4,7,8,9-HpCDF	Method 23/TO-9
1,2,3,4,6,7,8-HpCDD	Method 23/TO-9
OCDF	Method 23/TO-9
OCDD	Method 23/TO-9
Total HpCDD	Method 23/TO-9
Total HpCDF	Method 23/TO-9
Total HxCDD	Method 23/TO-9
Total HxCDF	Method 23/TO-9
Total PeCDD	Method 23/TO-9
Total PeCDF	Method 23/TO-9
Total TCDD	Method 23/TO-9
Total TCDF	Method 23/TO-9

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste
Metals		
Aluminum	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Antimony	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Arsenic	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Barium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Beryllium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Bismuth	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Boron	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Cadmium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Calcium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Chromium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Cobalt	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Copper	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Iron	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Lead	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Lithium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Magnesium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Manganese	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Mercury	EPA 6010B/6010C/7470/7470A	EPA 6010B/6010C/7471A/7471B
Molybdenum	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Nickel	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Platinum	EPA 6020/6020A	EPA 6020/6020A
Potassium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Selenium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Silica	EPA 6020/6020A	EPA 6020/6020A
Silicon	EPA 6020/6020A	EPA 6020/6020A
Silver	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Sodium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Strontium	EPA 6020/6020A	EPA 6020/6020A
Thallium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Tin	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Titanium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Uranium	EPA 6020/6020A	EPA 6020/6020A
Vanadium	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Zinc	EPA 6010B/6010C/6020/6020A	EPA 6010B/6010C/6020/6020A
Inorganic		
Chloride	SM 4500 Cl-E	----------
Chemical Oxygen Demand – COD	SM 5220D	----------
Cyanide	SM 4500 CN-E	----------
Hardness	EPA 2340B	----------
Nitrate	EPA 353.2	----------
Nitrate-Nitrate	EPA 353.2	----------
Nitrite	EPA 353.2 SM 4500 NO2-B	----------
Oil and Grease	EPA 1664A	EPA 9071B
pH	SM4500 H+B	EPA 9045D
Total Petroleum Hydrocarbons - TPH	EPA 1664A	EPA 9071B
Alkalinity	SM2320B	----------

Parameter/Analyte	**Nonpotable Water**	**Solid Hazardous Waste**
Ammonia	EPA 350.1	----------
Conductivity	EPA 120.1	----------
Fluoride	SM4500 F-C	----------
Paint Filters	----------	EPA 9095B
Sulfate	ASTM D516-02	----------
Total Phosphorus	SM 4500 P-E	----------
Settleable Solids	SM 2540F	----------
Total Dissolved Solids	SM 2540C	----------
Total Solids	SM 2540B	----------
Total Suspended Solids	SM 2540D	----------
Total Volatile Solids	EPA 160.4	----------
Turbidity	EPA 180.1	----------
Organic		
Alkylated PAHs	S-MN-O-561	S-MN-O-561
Diesel Range Organics - DRO	EPA 8015B	EPA 8015B
Gasoline Range Organics - GRO	EPA 8015B	EPA 8015B
1,2,4-Trimethylbenzene	EPA 8021B	EPA 8021B
1,3,5-Trimethylbenzene	EPA 8021B	EPA 8021B
Methyl-tert-butyl ether	EPA 8021B	EPA 8021B
Benzene	EPA 8021B	EPA 8021B
Toluene	EPA 8021B	EPA 8021B
Ethylbenzene	EPA 8021B	EPA 8021B
Total Xylene	EPA 8021B	EPA 8021B
Aldrin	EPA 8081B	EPA 8081B
alpha-BHC	EPA 8081B	EPA 8081B
beta-BHC	EPA 8081B	EPA 8081B
gamma-BHC (Lindane)	EPA 8081B	EPA 8081B
alpha-Chlordane	EPA 8081B	EPA 8081B
gamma-Chordane	EPA 8081B	EPA 8081B
4,4'-DDD	EPA 8081B	EPA 8081B
4,4'-DDE	EPA 8081B	EPA 8081B
4,4'-DDT	EPA 8081B	EPA 8081B
Dieldrin	EPA 8081B	EPA 8081B
Endosulfan I	EPA 8081B	EPA 8081B
Endosulfan II	EPA 8081B	EPA 8081B
Endosulfan Sulfate	EPA 8081B	EPA 8081B
Endrin	EPA 8081B	EPA 8081B
Endrin Aldehyde	EPA 8081B	EPA 8081B
Endrin Ketone	EPA 8081B	EPA 8081B
Heptachlor	EPA 8081B	EPA 8081B
Heptachlor Epoxide	EPA 8081B	EPA 8081B
Methoxychlor	EPA 8081B	EPA 8081B
Toxaphene	EPA 8081B	EPA 8081B
Chlordane (Technical)	EPA 8081B	EPA 8081B
PCB-1016 (Aroclor 1016)	EPA 8082/8082A	EPA 8082/8082A
PCB-1221 (Aroclor 1221)	EPA 8082/8082A	EPA 8082/8082A
PCB-1232 (Aroclor 1232)	EPA 8082/8082A	EPA 8082/8082A
PCB-1242 (Aroclor 1242)	EPA 8082/8082A	EPA 8082/8082A

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste
PCB-1248 (Aroclor 1248)	EPA 8082/8082A	EPA 8082/8082A
PCB-1254 (Aroclor 1254)	EPA 8082/8082A	EPA 8082/8082A
PCB-1260 (Aroclor 1260)	EPA 8082/8082A	EPA 8082/8082A
PCB-1262 (Aroclor 1262)	EPA 8082/8082A	EPA 8082/8082A
PCB-1268 (Aroclor 1268)	EPA 8082/8082A	EPA 8082/8082A
1,2-Dibromo-3-chloropropane	EPA 8011	----------
1,2-Dibromoethane (EDB)	EPA 8011	----------
1,2,4-Trichlorobenzene	EPA 8270C/8270D	EPA 8270C/8270D
1,2-Dichlorobenzene	EPA 8270C/8270D	EPA 8270C/8270D
1,3-Dichlorobenzene	EPA 8270C/8270D	EPA 8270C/8270D
1,4-Dichlorobenzene	EPA 8270C/8270D	EPA 8270C/8270D
1-Methylnaphthalene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
2,4,5-Trichlorophenol	EPA 8270C/8270D	EPA 8270C/8270D
2,4,6-Trichlorophenol	EPA 8270C/8270D	EPA 8270C/8270D
2,4-Dichlorophenol	EPA 8270C/8270D	EPA 8270C/8270D
2,4-Dimethylphenol	EPA 8270C/8270D	EPA 8270C/8270D
2,4-Dinitrotoluene	EPA 8270C/8270D	EPA 8270C/8270D
2.4-Dinitrophenol	EPA 8270C/8270D	EPA 8270C/8270D
2.6-Dinitrotoluene	EPA 8270C/8270D	EPA 8270C/8270D
2-Chloronaphthalene	EPA 8270C/8270D	EPA 8270C/8270D
2-Chlorophenol	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
2-Methylnaphthalene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
2-Methylphenol(o-Cresol)	EPA 8270C/8270D	EPA 8270C/8270D
2-Nitroaniline	EPA 8270C/8270D	EPA 8270C/8270D
2-Nitrophenol	EPA 8270C/8270D	EPA 8270C/8270D
3&4-Methylphenol	EPA 8270C/8270D	EPA 8270C/8270D
3,3'-Dichlorobenzidine	EPA 8270C/8270D	EPA 8270C/8270D
3-Nitroaniline	EPA 8270C/8270D	EPA 8270C/8270D
4,6-Dinitro-2-methylphenol	EPA 8270C/8270D	EPA 8270C/8270D
4-Bromophenylphenyl ether	EPA 8270C/8270D	EPA 8270C/8270D
4-Chloro-3-methylphenol	EPA 8270C/8270D	EPA 8270C/8270D
4-Chlorophenylphenyl ether	EPA 8270C/8270D	EPA 8270C/8270D
4-Nitroaniline	EPA 8270C/8270D	EPA 8270C/8270D
4-Nitrophenol	EPA 8270C/8270D	EPA 8270C/8270D
Acenaphthene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Acenaphthylene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Anthracene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Benzo(a)anthracene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Benzo(a)pyrene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Benzo(b)fluoranthene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste
Benzo(e)pyrene	EPA 8270C SIM/8270D SIM	EPA 8270C SIM/8270D SIM
Benzo(g,h,i)perylene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Benzo(k)fluoranthene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
bis(2-Chloroethoxy)methane	EPA 8270C/8270D	EPA 8270C/8270D
bis(2-Chloroisopropyl)ether	EPA 8270C/8270D	EPA 8270C/8270D
bis(2-Ethylhexyl)phthalate	EPA 8270C/8270D	EPA 8270C/8270D
bis(2-Chloroethyl) ether	EPA 8270C/8270D	EPA 8270C/8270D
Butylbenzylphthalate	EPA 8270C/8270D	EPA 8270C/8270D
Carbazole	EPA 8270C/8270D	EPA 8270C/8270D
Chrysene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Dibenz(a,h)anthracene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Dibenzofuran	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Diethylphthalate	EPA 8270C/8270D	EPA 8270C/8270D
Dimethylphthalate	EPA 8270C/8270D	EPA 8270C/8270D
Di-n-butylphthalate	EPA 8270C/8270D	EPA 8270C/8270D
Di-n-octylphthalate	EPA 8270C/8270D	EPA 8270C/8270D
Fluoranthene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Fluroene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Hexachloro-1,3-butadiene	EPA 8270C/8270D	EPA 8270C/8270D
Hexachlorobenzene	EPA 8270C/8270D	EPA 8270C/8270D
Hexachlorocyclopentadiene	----------	EPA 8270C/8270D
Hexachloroethane	EPA 8270C/8270D	EPA 8270C/8270D
Indeno(1,2,3-cd)pyrene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Isophorone	EPA 8270C/8270D	EPA 8270C/8270D
Naphthalene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Nitrobenzene	EPA 8270C/8270D	EPA 8270C/8270D
N-Nitroso-di-n-propylamine	EPA 8270C/8270D	EPA 8270C/8270D
N-Nitrosodiphenylamine	EPA 8270C/8270D	EPA 8270C/8270D
Pentachlorophenol	EPA 8270C/8270D	EPA 8270C/8270D
Phenanthrene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
Phenol	EPA 8270C/8270D	EPA 8270C/8270D
Pyrene	EPA 8270C/8270D/8270C SIM/ 8270D SIM	EPA 8270C/8270D/8270C SIM/ 8270D SIM
1,1,1,2-Tetrachloroethane	EPA 8260B	EPA 8260B
1,1,1-Trichloroethane	EPA 8260B	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B	----------
1,1,2-Trichloroethane	EPA 8260B	EPA 8260B
1,1,2-Trichlorotrifluoroethane	EPA 8260B	EPA 8260B
1,1-Dichloroethane	EPA 8260B	EPA 8260B
1,1-Dichloroethene	EPA 8260B	EPA 8260B

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste
1,1-Dichloropropene	EPA 8260B	EPA 8260B
1,2,3-Trichlorobenzene	EPA 8260B	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B	EPA 8260B
1,2,4-Trichlorobenzene	EPA 8260B	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B	EPA 8260B
1,2-Dibromoethane (EDB)	EPA 8260B	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B	EPA 8260B
1,2-Dichloroethane	EPA 8260B	EPA 8260B
1,2-Dichloropropane	EPA 8260B	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B	EPA 8260B
1,3-Dichlorobenzene	EPA 8260B	EPA 8260B
1,3-Dichloropropane	EPA 8260B	EPA 8260B
1,4-Dichlorobenzene	EPA 8260B	EPA 8260B
2,2-Dichloropropane	EPA 8260B	EPA 8260B
2-Butanone (MEK)	EPA 8260B	EPA 8260B
4-Chlorotoluene	EPA 8260B	EPA 8260B
4-Methyl-2-pentanone (MIBK)	EPA 8260B	EPA 8260B
Acetone	EPA 8260B	----------
Allyl Chloride	EPA 8260B	EPA 8260B
Benzene	EPA 8260B	EPA 8260B
Bromobenzene	EPA 8260B	EPA 8260B
Bromochloromethane	EPA 8260B	EPA 8260B
Bromodichloromethane	EPA 8260B	EPA 8260B
Bromoform	EPA 8260B	EPA 8260B
Bromomethane	EPA 8260B	EPA 8260B
Carbon tetrachloride	EPA 8260B	EPA 8260B
Chlorobenzene	EPA 8260B	EPA 8260B
Chloroethane	EPA 8260B	EPA 8260B
Chloroform	EPA 8260B	EPA 8260B
Chloromethane	EPA 8260B	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B	EPA 8260B
Dibromochloromethane	EPA 8260B	EPA 8260B
Dibromomethane	EPA 8260B	EPA 8260B
Dichlorodifluoromethane	EPA 8260B	EPA 8260B
Dichlorofluoromethane	EPA 8260B	EPA 8260B
Diethyl ether (Ethyl ether)	EPA 8260B	EPA 8260B
Ethylbenzene	EPA 8260B	EPA 8260B
Hexachloro-1,3-butadiene	EPA 8260B	EPA 8260B
Isopropylbenzene (Cumene)	EPA 8260B	EPA 8260B
Methyl-tert-butyl ether	EPA 8260B	EPA 8260B
Methylene Chloride	EPA 8260B	EPA 8260B
Naphthalene	EPA 8260B	EPA 8260B
Styrene	EPA 8260B	EPA 8260B
Tetrachloroethene	EPA 8260B	----------
Tetrahydrofuran	EPA 8260B	EPA 8260B
Toluene	EPA 8260B	EPA 8260B
Trichloroethene	EPA 8260B	EPA 8260B
Trichlorofluoromethane	EPA 8260B	EPA 8260B
Vinyl chloride	EPA 8260B	EPA 8260B
Xylene (Total)	EPA 8260B	EPA 8260B

Parameter/Analyte	Nonpotable Water	Solid Hazardous Waste
cis-1,2-Dichloroethene	EPA 8260B	EPA 8260B
m&p-Xylene	EPA 8260B	EPA 8260B
n-Butylbenzene	EPA 8260B	EPA 8260B
n-Propylbenzene	EPA 8260B	EPA 8260B
o-Xylene	EPA 8260B	EPA 8260B
p-Isopropyltoluene	EPA 8260B	EPA 8260B
sec-Butylbenzene	EPA 8260B	EPA 8260B
tert-Butylbenzene	EPA 8260B	EPA 8260B
trans-1,3-Dichloropropene	EPA 8260B	EPA 8260B
trans-1,2-Dichloroethene	EPA 8260B	EPA 8260B
Gasoline Range Organics - GRO	AK101	AK101
Diesel Range Organics - DRO	AK102	AK102
Residual Range Organics	AK103	AK103
Ethane	RSK-175	----------
Ethene	RSK-175	----------
Methane	RSK-175	----------

Test Method	Matrix	Extraction Method
8270C, 8270C SIM, 8015B DRO, 8081B , 8082A, 8082, 8270D SIM	Water	EPA 3510C
8270C, 8270D	Water	EPA 3520C
8270C, 8270C SIM, 8015B DRO, 8081B , 8082A, 8082, 8270D SIM	Solid	EPA 3550C
8260B	Solid	EPA 5035A/5030B
8015B GRO, 8021B	Solid	EPA 5030B
6010B/C, 6020, 6020A	Water	EPA 3010A/3020A
6010B,C, 6020, 6020A	Solid	EPA 3050B
8260B, 8270C, 6010B/C, 8270D	Solid/Liquid	EPA 1311 TCLP/1312

*Standard Methods (SM) refers to the current online edition.

Accredited Laboratory

A2LA has accredited

PACE ANALYTICAL SERVICES, LLC.

Minneapolis, MN

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.0 of the DoD Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 23rd day of September, 2015.

President and CEO
For the Accreditation Council
Certificate Number 2926.01
Valid to October 31, 2017
Revised November 18, 2016

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

MAY 18 2016

Ref: 8TMS-L

Ms. Nasreen K. DeRubeis
Senior Quality Manager
Pace Analytical Services, Inc. – Pittsburgh
1638 Roseytown Road
Suites 2, 3 & 4
Greensburg, Pennsylvania 15601

Dear Ms. DeRubeis:

In accordance with the authority stated in 40 CFR 141 and 142, Certification Officers from the U.S. Environmental Protection Agency Region 8 have reviewed your request for reciprocal certification of drinking water contaminants along with the documentation that was attached. Based upon the recommendation of my staff, I hereby grant continued reciprocal certification for the state of Wyoming and all tribal public water systems in Region 8 to Pace Analytical Services, Inc. – Pittsburgh located in Greensburg, Pennsylvania, for the parameters listed below. This reciprocal certification is based on the National Environmental Laboratory Accreditation Program (NELAP) accreditation of your laboratory by the commonwealth of Pennsylvania, and on the performance of your laboratory in the analysis of proficiency testing samples.

		Certification		
Parameter	Method(s)	Begin Date	End Date	Status
Group: Radiochemical Contaminants				
	900.0	4/1/2016	3/31/2017	Reciprocal
Gross Alpha	7110 C	4/1/2016	3/31/2017	Reciprocal
Gross Beta	900.0	4/1/2016	3/31/2017	Reciprocal
Radium-226	903.1	4/1/2016	3/31/2017	Reciprocal
Radium-228	904.0	4/1/2016	3/31/2017	Reciprocal
	908.0	4/1/2016	3/31/2017	Reciprocal
Total Uranium	ASTM D5174-97	4/1/2016	3/31/2017	Reciprocal
Radioactive Strontium-90	905.0	4/1/2016	3/31/2017	Reciprocal
Tritium	906.0	4/1/2016	3/31/2017	Reciprocal
Gamma Emitters	901.1	4/1/2016	3/31/2017	Reciprocal

Certification will remain in effect for the above period under the conditions that the laboratory remains accredited by the commonwealth of Pennsylvania NELAP for all of the above parameters, that the laboratory follows the specified methods, and that Water Supply proficiency testing samples are successfully analyzed by the laboratory for each of the above parameters once per year. It is the responsibility of the laboratory to request certification beyond the stated date.

If you have any comments or questions, please contact Marcie Tidd, Region 8 Drinking Water Laboratory Certification Program Manager, at (303) 312-7764 (tidd.marcie@epa.gov).

Sincerely,

Richard D. Buhl
Assistant Regional Administrator
Office of Technical and Management Services

Accredited Laboratory

A2LA has accredited

EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC

Lancaster, PA

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.0 of the DoD Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 27th day of February 2017.

President and CEO
For the Accreditation Council
Certificate Number 0001.01
Valid to November 30, 2018

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

PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

Pacific Agricultural Laboratory, LLC

21830 SW Alexander Lane, Sherwood, OR 97140

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2005

& Meets the Requirements of the AOAC International Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food and Pharmaceutical-2010 & APLAC TC 007 Guidelines for Food Testing Laboratories

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated January 2009):

Chemical and Environmental Testing

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President/Operations Manager

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
January 7, 2013	August 30, 2016	September 30, 2018
Revision Date:	*Accreditation No.*	*Certificate No.:*
March 15, 2017	64422	L16-362-R1

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

June 15, 2010

John Doe
Environmental, Inc
111 Avenue A
Suite 3
Sunshine, CO 80333

RE: Project: Monitoring Wells Area A
Pace Project No.: 6661111

Dear John Doe:
Enclosed are the analytical results for sample(s) received by the laboratory on May 13, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heather M. Wilson

Heather Wilson

heather.wilson@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Kansas Certification IDs
9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6661111001	**Well A**	Water	05/08/10 16:45	05/13/10 09:30
6661111002	**Well B**	Water	05/08/10 18:10	05/13/10 09:30
6661111003	**Well C**	Water	05/08/10 19:20	05/13/10 09:30
6661111004	**Well D**	Water	05/08/10 19:40	05/13/10 09:30
6661111005	**Well E**	Water	05/09/10 08:50	05/13/10 09:30

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SAMPLE ANALYTE COUNT

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6661111001	**Well A**	EPA 8015C	CMP	3
		EPA 8260B	NLM	11
6661111002	**Well B**	EPA 8015C	CMP	3
		EPA 8260B	NLM	11
6661111003	**Well C**	EPA 8015C	CMP	3
		EPA 8260B	NLM	11
6661111004	**Well D**	EPA 8015C	CMP	3
		EPA 8260B	ZNF	16
6661111005	**Well E**	EPA 8015C	CMP	3
		EPA 8260B	ZNF	16

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ANALYTICAL RESULTS

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Sample: Well A **Lab ID: 6661111001** Collected: 05/08/10 16:45 Received: 05/13/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015C Diesel Range Organics	Analytical Method: EPA 8015C Preparation Method: EPA 3510C							
TPH-DRO	ND	mg/L	0.50	1	05/13/10 00:00	05/14/10 21:59		
p-Terphenyl (S)	78	%	40-118	1	05/13/10 00:00	05/14/10 21:59	92-94-4	
n-Tetracosane (S)	68	%	36-120	1	05/13/10 00:00	05/14/10 21:59	646-31-1	
8260 MSV VOCs and Oxygenates	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		05/22/10 04:51	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		05/22/10 04:51	100-41-4	
Naphthalene	ND	ug/L	20.0	1		05/22/10 04:51	91-20-3	
Toluene	ND	ug/L	1.0	1		05/22/10 04:51	108-88-3	
TPH-GRO	ND	ug/L	500	1		05/22/10 04:51		
Xylene (Total)	ND	ug/L	3.0	1		05/22/10 04:51	1330-20-7	
Dibromofluoromethane (S)	113	%	86-112	1		05/22/10 04:51	1868-53-7	S3
Toluene-d8 (S)	101	%	90-110	1		05/22/10 04:51	2037-26-5	
4-Bromofluorobenzene (S)	97	%	87-113	1		05/22/10 04:51	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	82-119	1		05/22/10 04:51	17060-07-0	
Preservation pH	**1.0**		0.10	1		05/22/10 04:51		

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ANALYTICAL RESULTS

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Sample: Well C **Lab ID: 6661111003** Collected: 05/08/10 19:20 Received: 05/13/10 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015C Diesel Range Organics	Analytical Method: EPA 8015C Preparation Method: EPA 3510C							
TPH-DRO	**0.96**	mg/L	0.50	1	05/13/10 00:00	05/14/10 22:38		
p-Terphenyl (S)	54	%	40-118	1	05/13/10 00:00	05/14/10 22:38	92-94-4	
n-Tetracosane (S)	53	%	36-120	1	05/13/10 00:00	05/14/10 22:38	646-31-1	
8260 MSV VOCs and Oxygenates	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		05/22/10 05:24	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		05/22/10 05:24	100-41-4	
Naphthalene	ND	ug/L	20.0	1		05/22/10 05:24	91-20-3	
Toluene	ND	ug/L	1.0	1		05/22/10 05:24	108-88-3	
TPH-GRO	ND	ug/L	500	1		05/22/10 05:24		
Xylene (Total)	ND	ug/L	3.0	1		05/22/10 05:24	1330-20-7	
Dibromofluoromethane (S)	114	%	86-112	1		05/22/10 05:24	1868-53-7	S3
Toluene-d8 (S)	100	%	90-110	1		05/22/10 05:24	2037-26-5	
4-Bromofluorobenzene (S)	97	%	87-113	1		05/22/10 05:24	460-00-4	
1,2-Dichloroethane-d4 (S)	119	%	82-119	1		05/22/10 05:24	17060-07-0	
Preservation pH	**1.0**		0.10	1		05/22/10 05:24		

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(913)599-5665

QUALITY CONTROL DATA

Project: Monitoring Wells Area A
Pace Project No.: 6661111

QC Batch: OEXT/22871 Analysis Method: EPA 8015C
QC Batch Method: EPA 3510C Analysis Description: EPA 8015C
Associated Lab Samples: 6661111001, 6661111002, 66661111003, 6661111004, 666111005

METHOD BLANK: 63112 Matrix: Water
Associated Lab Samples: 6661111001, 6661111002, 6661111003, 6661111004, 6661111005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH-DRO	mg/L	ND	0.50	05/14/10 21:39	
n-Tetracosane (S)	%	64	36-120	05/14/10 21:39	
p-Terphenyl (S)	%	77	40-118	05/14/10 21:39	

LABORATORY CONTROL SAMPLE: 682413

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH-DRO	mg/L	2.5	1.8	73	48-119	
n-Tetracosane (S)	%			72	36-120	
p-Terphenyl (S)	%			79	40-118	

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QUALITY CONTROL DATA

Project: Monitoring Wells Area A
Pace Project No.: 666111

QC Batch: MSV/2825 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV WY VOC Oxygenates
Associated Lab Samples: 6661111001, 6661111002, 66661111003

METHOD BLANK: 63239 Matrix: Water
Associated Lab Samples: 6661111001, 6661111002, 6661111003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	05/22/10 04:34	
Ethylbenzene	ug/L	ND	1.0	05/22/10 04:34	
Naphthalene	ug/L	ND	20.0	05/22/10 04:34	
Toluene	ug/L	ND	1.0	05/22/10 04:34	
TPH-GRO	ug/L	ND	500	05/22/10 04:34	
Xylene (Total)	ug/L	ND	3.0	05/22/10 04:34	
1,2-Dichloroethane-d4 (S)	%	114	82-119	05/22/10 04:34	
4-Bromofluorobenzene (S)	%	100	87-113	05/22/10 04:34	
Dibromofluoromethane (S)	%	110	86-112	05/22/10 04:34	
Toluene-d8 (S)	%	100	90-110	05/22/10 04:34	

LABORATORY CONTROL SAMPLE: 62340

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.9	94	79-116	
Ethylbenzene	ug/L	20	18.6	93	76-122	
Naphthalene	ug/L	20	13.5J	67	60-145	
Toluene	ug/L	20	19.4	97	75-120	
TPH-GRO	ug/L	4000	2910	73	62-136	
Xylene (Total)	ug/L	60	53.8	90	74-124	
1,2-Dichloroethane-d4 (S)	%			112	82-119	
4-Bromofluorobenzene (S)	%			93	87-113	
Dibromofluoromethane (S)	%			110	86-112	
Toluene-d8 (S)	%			101	90-110	

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Monitoring Wells Area A
Pace Project No.: 6661111

QC Batch: MSV/2306
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260 MSV WY VOC Oxygenates
Associated Lab Samples: 6661111004, 6661111005

METHOD BLANK: 63384
Matrix: Water
Associated Lab Samples: 6661111004, 6661111005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	05/22/10 19:12	
Diisopropyl ether	ug/L	ND	1.0	05/22/10 19:12	
Ethyl-tert-butyl ether	ug/L	ND	1.0	05/22/10 19:12	
Ethylbenzene	ug/L	ND	1.0	05/22/10 19:12	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/22/10 19:12	
Naphthalene	ug/L	ND	20.0	05/22/10 19:12	
tert-Amylmethyl ether	ug/L	ND	1.0	05/22/10 19:12	
tert-Butyl Alcohol	ug/L	ND	20.0	05/22/10 19:12	
Toluene	ug/L	ND	1.0	05/22/10 19:12	
TPH-GRO	ug/L	ND	500	05/22/10 19:12	
Xylene (Total)	ug/L	ND	3.0	05/22/10 19:12	
1,2-Dichloroethane-d4 (S)	%	90	82-119	05/22/10 19:12	
4-Bromofluorobenzene (S)	%	99	87-113	05/22/10 19:12	
Dibromofluoromethane (S)	%	101	86-112	05/22/10 19:12	
Toluene-d8 (S)	%	103	90-110	05/22/10 19:12	

LABORATORY CONTROL SAMPLE: 63085

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.7	83	79-116	
Diisopropyl ether	ug/L	20	14.5	73	71-123	
Ethyl-tert-butyl ether	ug/L	20	15.7	78	70-122	
Ethylbenzene	ug/L	20	17.7	89	76-122	
Methyl-tert-butyl ether	ug/L	20	16.5	82	62-131	
Naphthalene	ug/L	20	19.8J	99	60-145	
tert-Amylmethyl ether	ug/L	20	16.3	81	68-126	
tert-Butyl Alcohol	ug/L	100	74.8	75	36-164	
Toluene	ug/L	20	17.3	87	75-120	
TPH-GRO	ug/L	4000	3880	97	62-136	
Xylene (Total)	ug/L	60	54.5	91	74-124	
1,2-Dichloroethane-d4 (S)	%			93	82-119	
4-Bromofluorobenzene (S)	%			98	87-113	
Dibromofluoromethane (S)	%			101	86-112	
Toluene-d8 (S)	%			108	90-110	

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QUALIFIERS

Project: Monitoring Wells Area A
Pace Project No.: 6661111

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: OEXT/2871

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/2855

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/2806

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

S3 Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Monitoring Wells Area A
Pace Project No.: 6661111

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6661111001	**Well A**	EPA 3510C	OEXT/2271	EPA 8015C	GCSV/567
6661111002	**Well B**	EPA 3510C	OEXT/2271	EPA 8015C	GCSV/567
6661111003	**Well C**	EPA 3510C	OEXT/2271	EPA 8015C	GCSV/567
6661111004	**Well D**	EPA 3510C	OEXT/2271	EPA 8015C	GCSV/567
6661111005	**Well E**	EPA 3510C	OEXT/2271	EPA 8015C	GCSV/567
6661111001	**Well A**	EPA 8260B	MSV/2855		
6661111002	**Well B**	EPA 8260B	MSV/2855		
6661111003	**Well C**	EPA 8260B	MSV/2855		
6661111004	**Well D**	EPA 8260B	MSV/2306		
6661111005	**Well E**	EPA 8260B	MSV/2306		

INORGANIC & ORGANIC PARAMETERS IN SOLID SAMPLES

Parameter	EPA Method	Container	Preservative	Max Hold Time
Aromatic and Halogenated Volatiles	8021	5035 vial kit or 4 or 8 oz Glass Jar	see note 1	14 days
Base/Neutrals and Acids	8270	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Diesel Range Organics	8015	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Dioxins and Furans	1613B	4 or 8 oz Glass Jar	≤6°C	1 Year
Explosives	8330/8332	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Gasoline Range Organics	8015	5035 vial kit or 4 or 8 oz Glass Jar	see note 1	14 days
Herbicides, Chlorinated	8151	4 or 8 oz Glass Jar	≤6°C	14/40 days
Mercury	7471	4 or 8 oz Glass Jar	≤6°C	28 days
Metals	6010 / 6020	4 or 8 oz Glass Jar	None	6 months
Pesticides, Organochlorine	8081	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Pesticides, Organophosphorus	8141	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Polynuclear Aromatic Hydrocarbons	8270 SIM	4 or 8 oz Glass Jar	≤6°C	14/40 Days
Volatiles	8260	5035 vial kit or 4 or 8 oz Glass Jar	see note 1	14 days

[1] 5035/5035A Note: 5035 vial kit typically contains 2 vials water, preserved by freezing or, 2 vials aqueous sodium bisulfate preserved at ≤6°C, and one vial methanol stored at ≤6°C, and one container of unpreserved sample stored at ≤6°C

ORGANIC & INORGANIC PARAMETERS IN AIR SAMPLES

Parameter	Method	Container	Max Hold Time
BTEX/Total Hydrocarbons	TO-3	Summa Canister	28 Days
BTEX/Total Hydrocarbons	TO-3	Sampling Bag or equivalent	48 Hours
Condensable Particulate Emissions	EPA 202	Solutions	6 Months
Dioxins & Furans	TO-9	PUF	7/30 Days
Hydrogen Halide & Halogen Emissions	EPA 26 / 26A	Solutions	6 Months
Metals (ICP)	NIOSH 7300A/7303	Filters	6 Months
Methane, Ethane, Ethene	TO3M	Summa Canister	28 days
Methane, Ethane, Ethene	TO3M	Sampling Bag or equivalent	48 Hours
Particulates	PM10	Filters	
PCBs & Pesticides, Organochlorine	TO4/TO10	PUF	7/40 Days
Permanent Gases	EPA 3C	Summa Canister	28 Days
Permanent Gases	EPA 3C	Sampling Bag or equivalent	48 Hours
Polynuclear Aromatic Hydrocarbons	TO13	PUF	7/40 Days
Stationary Source Dioxins & Furans	Method 23	XAD Trap	30/45 Days
Stationary Source Mercury	EPA 101	Filters/Solutions	28 Days
Stationary Source Metals	EPA 29	Filters/Solutions	6 Months, 28 Days for Hg
Stationary Source Particulates	EPA 5	Filter/Solutions	
Stationary Source PM10	EPA 201A	Filters	6 Months
Volatiles	TO14	Summa Canister	28 Days
Volatiles	TO14	Sampling Bag or equivalent	48 Hours
Volatiles	TO15	Summa Canister	28 Days
Volatiles, short list PAH, DRO	TO17	TD Tube	28 Days
Volatiles	TO17M	Radiello Tube	14 days

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Analytical Guide

ORGANIC PARAMETERS IN AQUEOUS SAMPLES

Parameter	Method			Container	Preservative	Max Hold Time
	EPA Drinking Water	EPA Water	EPA Waste SW-846			
Aromatic and Halogenated Volatiles		601/602	8021	3 - 40mL vials	pH<2 HCl, ≤6°C, $Na_2S_2O_3$ if Cl present	14 Days (7 days for aromatics if unpreserved)
Base/Neutrals and Acids		625	8270	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	7/40 Days
Base/Neutrals, Acids & Pesticides	525.2			1L Amber Glass	pH <HCl, sodium sulfite if Cl present	14/30 Days
Diesel Range Organics			8015	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	7/40 Days – see note 3
Dioxins and Furans	1613B			1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	1 Year
Dioxins and Furans			8290	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	30/45 Days
EDB & DBCP	504.1		8011	40mL vials	≤6°C, $Na_2S_2O_3$ if Cl present	14 Days
Explosives			8330/8332	1L Amber Glass	≤6°C	7/40 Days
Gasoline Range Organics			8015	40mL vials	pH<2 HCl	14 Days – see note 3
Haloacetic Acids	552.1/552.2			40mL Amber vials	NH_4Cl, ≤6°C	14/7 Days if extracts stored at ≤6°C or 14/14 Days if extracts stored at ≤-10°C
Herbicides, Chlorinated	515.1/515.3		8151	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	7/40 Days for 8151; 14/28 Days for 515.1/515.3
PCBs, Organochlorine			8082	1L Amber Glass	≤6°C; $Na_2S_2O_3$ if Cl present	1 Year/1Year
PCBs & Pesticides, Organochlorine		608		1L Amber Glass	≤6°C; $Na_2S_2O_3$ if Cl present	7/40 Days
Pesticides, Organochlorine			8081	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	7/40 Days
Pesticides, Organophosphorus			8141	1L Amber Glass	pH 5-8 with NaOH or H_2SO_4; ≤6°C, $Na_2S_2O_3$ if Cl Present	7/40 Days
Polynuclear Aromatic Hydrocarbons			8270 SIM	1L Amber Glass	≤6°C, $Na_2S_2O_3$ if Cl present	7/40 Days
Volatiles		624	8260	3 - 40mL vials	pH<2 HCl; ≤6°C	14 Days (7 Days for aromatics if unpreserved)
Volatiles (see note 2)	524.2			40mL vials (in duplicate)	pH<2 HCl, ≤6°C, $Na_2S_2O_3$ if Cl present	14 Days

[2] Method 524.2 lists ascorbic acid as the preservative when residual chlorine is suspected, unless gases or Table 7 compounds are NOT compounds of interest and then sodium thiosulfate is the preservative recommended.
[3] States may have specific method requirements.

INORGANIC PARAMETERS IN AQUEOUS SAMPLES

Parameter	Method			Container	Preservative	Max Hold Time
	EPA Water	Standard Methods	EPA Waste SW-846			
Acidity		SM2310B		Plastic/Glass	≤6°C	14 Days
Alkalinity	310.2	SM2320B		Plastic/Glass	≤6°C	14 Days
Anions by IC, including Br, Cl, F, NO2, NO3,o-Phos, SO4, bromate, chlorite, chlorate)	300.0			Plastic/Glass	≤6°C	All analytes 28 days except NO2, NO3, o-Phos (48 hours); chlorite (immediate); NO2/NO3 combo 28 days
Bacteria, Total Plate Count		SM9221D		Plastic/WK	≤6°C, $Na_2S_2O_3$	24 Hours
BOD/cBOD		SM5210B/Hach 10360		Plastic/Glass	≤6°C	48 hours
Chloride		SM4500Cl-C,E		Plastic/Glass	None	28 Days
Chlorine, Residual	330.5	SM4500Cl-D, E, G / Hach 8167		Plastic/Glass	None	15 minutes
COD	410.4	SM5220C, D / Hach 8000		Plastic/Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Color		SM2120B,E		Covered Plastic, Acid Washed Amber Glass	≤6°C	24 Hours
Cyanide, Reactive			Chapter 7	Plastic/Glass	None	28 Days
Cyanide, Total and Amenable	335.4	SM4500CN-A,B,C,D,E,G,I,N	9010/9012	Plastic/Glass	pH>12 NaOH; ≤6°C ascorbic acid if Cl present	14 Days (24 hrs if sulfide present - applies to SM4500CN only)
Ferrous Iron		SM3500Fe-D		Glass	None	Immediate
Flashpoint/Ignitability			1010	Plastic/Glass	None	28 Days
Fluoride		SM4500FI-C,D		Plastic	None	28 Days
Hardness, Total (CaCO3)	130.1	SM2340B,C		Plastic/Glass	pH<2 HNO_3	6 Months
Hexavalent Chromium	218.6	SM3500Cr-C,D	7196	Plastic/Glass	≤6°C	24 Hours, unless preserved per method, then 28 Days
Mercury	245.1/245.2		7470	Plastic/Glass	pH<2 HNO_3	28 Days
Mercury, Low Level	1631E			Fluoropolymer (Glass if Hg is only analyte being tested)	12N HCl or BrCl	48 hours for preservation or analysis; 28 days to preservation if sample oxidized in bottle; 90 days for analysis if preserved
Metals (ICP/ICPMS)	200.7/200.8		6010/6020	Plastic/Glass	pH<2 HNO_3	6 Months
Nitrogen, Ammonia	350.1	SM4500NH3		Plastic/Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Nitrogen, Kjeldahl	351.2	SM4500-Norg		Plastic/Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Nitrogen, Nitrate	352.1	SM4500-NO3		Plastic/Glass	≤6°C	48 Hours
Nitrogen, Nitrate & Nitrite, combined	353.2	SM4500-NO3		Plastic/Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Nitrogen, Organic	351.2 / 350.1	SM4500-Norg		Calculation	pH<2 H_2SO_4, ≤6°C	28 Days
Odor		SM2150B		Glass	≤6°C	24 Hours
Oil and Grease/HEM	1664A	SM5520B	9070	Glass	pH<2 H_2SO_4 or HCl, ≤6°C	28 Days
Oxygen, Dissolved (Probe)		SM4500-O		Glass	None	15 minutes
Paint Filter Liquid Test.			9095	Plastic/Glass	None	N/A

INORGANIC PARAMETERS IN AQUEOUS SAMPLES

Parameter	**Method**			**Container**	**Preservative**	**Max Hold Time**
	EPA Water	**Standard Methods**	**EPA Waste SW-846**			
Phenol, Total	420.1/420.4		9065/9066	Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Phosphorus, Orthophosphate	365.1/365.3	SM4500P		Plastic	Filter, ≤6°C	Filter within 15 minutes, Analyze within 48 hours
Phosphorus, Total	365.1 / 365.3 / 365.4	SM4500P		Plastic/Glass	pH<2 H_2SO_4, ≤6°C	28 Days
Silica, Dissolved		SM4500Si-D		Plastic	≤6°C	28 Days
Solids, Settleable		SM2540F		Glass	≤6°C	48 Hours
Solids, Total		SM2540B		Plastic/Glass	≤6°C	7 Days
Solids, Total Dissolved		SM2540C		Plastic/Glass	≤6°C	7 Days
Solids, Total Suspended	USGS I-3765-85	SM2540D		Plastic/Glass	≤6°C	7 Days
Specific Conductance	120.1	SM2510B	9050	Plastic/Glass	≤6°C	28 Days
Sulfate	375.2	SM4500S04 / ASTM D516	9036/9038	Plastic/Glass	≤6°C	28 Days
Sulfide, Reactive			Chapter 7	Plastic/Glass	None	28 Days
Sulfide, Total		SM4500S	9030	Plastic/Glass	pH>9 NaOH and ZnOAc; ≤6°C	7 Days
Sulfite		SM4500SO3		Plastic/Glass	None	15 minutes
Surfactants (MBAS)		SM5540C		Plastic/Glass	≤6°C	48 Hours
Total Organic Carbon (TOC)		SM5310B,C,D	9060	Glass	pH<2 H_2SO_4 or HCl, ≤6°C	28 Days
Total Organic Halogen (TOX)		SM5320	9020/9021	Glass (No headspace)	pH<2 H_2SO_4, ≤6°C	14 Days
Turbidity	180.1	SM2130B		Plastic/Glass	≤6°C	48 Hours

RADCHEM PARAMETERS

Parameter	Method			Container	Preservative	Max Hold Time
	EPA Water	Standard Methods	EPA SW-846			
Gamma Emitting Radionuclides (see note 4)	901.1			Plastic/Glass	pH<2 HNO_3	180 days
Gross Alpha (NJ 48Hr Method)	NJAC 7:18-6			Plastic/Glass	pH<2 HNO_3	48 hours
Gross Alpha and Gross Beta (see note 4)	900.0		9310	Plastic/Glass	pH<2 HNO_3	180 days
Radium-226 (see note 4)	903.0/903.1			Plastic/Glass	pH<2 HNO_3	180 days
Radium-228 (see note 4)	904.0		9320	Plastic/Glass	pH<2 HNO_3	180 days
Radioactive Strontium (see note 4)	905.0			Plastic/Glass	pH<2 HNO_3	180 days
Total Alpha Radium (see note 4)	903.0		9315	Plastic/Glass	pH<2 HNO_3	180 days
Total Uranium (see note 4)	908.0	D5174-97		Plastic/Glass	pH<2 HNO3	180 days
Tritium	906.0			Glass	None	180 Days

[4]Methods 9315 and 9320 both state that if samples are unpreserved, the samples should be brought to the lab within 5 days of collection, preserved in the lab, and then allowed to sit for a minimum of 16 hours before sample preparation/analysis.