2015 Alpine Satellite Development Plan (ASDP) Water Quality Monitoring
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# ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>°C</td>
<td>Degrees Celsius</td>
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<tr>
<td>ADEC</td>
<td>Alaska Department of Environmental Conservation</td>
</tr>
<tr>
<td>ASDP</td>
<td>Alpine Satellite Development Plan</td>
</tr>
<tr>
<td>CPAI</td>
<td>ConocoPhillips Alaska, Inc.</td>
</tr>
<tr>
<td>DO</td>
<td>Dissolved oxygen</td>
</tr>
<tr>
<td>DRO</td>
<td>Diesel range organics</td>
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<tr>
<td>FID</td>
<td>Flame ionization detector</td>
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<tr>
<td>GC</td>
<td>Gas chromatography</td>
</tr>
<tr>
<td>ICP</td>
<td>Inductively coupled plasma</td>
</tr>
<tr>
<td>μS/cm</td>
<td>Microsiemens per centimeter</td>
</tr>
<tr>
<td>mg/L</td>
<td>Milligrams per liter</td>
</tr>
<tr>
<td>Michael Baker</td>
<td>Michael Baker International</td>
</tr>
<tr>
<td>NTU</td>
<td>Nephelometric Turbidity Units</td>
</tr>
<tr>
<td>ppt</td>
<td>Parts per thousand</td>
</tr>
<tr>
<td>PSS</td>
<td>Practical Salinity Scale</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>RRO</td>
<td>Residual range organics</td>
</tr>
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<td>SGS</td>
<td>SGS North America, Inc.</td>
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1.0 INTRODUCTION

The 2015 Alpine Satellite Development Plan (ASDP) Water Quality Monitoring Report presents the results of the field sampling conducted in August 2015 for ConocoPhillips Alaska, Inc. (CPAI). Annual monitoring of lakes L9323, L9324, and M9313 is required by North Slope Borough Ordinance Serial No. 75-6-46, Stipulation IV.2.4.3(h) (NSB 2004). Lakes L9323, L9324, and M9313 have been monitored annually by Michael Baker International (Michael Baker) since 2007. An overview of the three study lakes relative to Alpine facilities is presented in Figure 1.1.

During the winter of 1998/1999, CPAI initiated construction of the Alpine Facility, CD1 and CD2, in the Colville River Delta. Alpine operations expanded with the implementation of the ASDP during the 2004/2005 winter season. Construction included placement of gravel facilities for two new satellite drill sites, CD3 and CD4. The CD3 pad development included an airstrip and pad/airstrip access road, apron, and taxiway. The CD4 pad development included an access road running parallel to the existing Alpine Pipeline, connecting to the CD2 access road. Lake M9313 is near CD3, and lakes L9323 and L9324 are located north and south of CD4, respectively. In December 2011, CPAI was granted a permit allowing construction of a gravel road, bridge, and pipeline crossing over the Nigliq channel of the Colville River for the development of a satellite field five miles west of Alpine.

The 2015 water quality monitoring program included in-situ field sampling of the three lakes for temperature, dissolved oxygen (DO), salinity, conductivity/specific conductance, and turbidity. Additional water samples were collected at the lakes for laboratory analysis of dissolved hydrocarbons: diesel range organics (DRO), residual range organics (RRO), and Resource Conservation and Recovery Act (RCRA) metals.
2.0 METHODS

On August 24, 2015, Michael Baker conducted field investigations at lakes L9323, L9324, and M9313. Pathfinder Aviation provided helicopter access to lakes L9324 and M9313. The helicopter was used for equipment drop off at Lake L9324 only. An Alpine Environmental pickup truck was used to access lakes L9323 and L9324 for sampling.

In-situ water quality data measurements and laboratory sample collections were performed by a two-person Michael Baker team. The Michael Baker team used inflatable kayaks with an attached support raft for transporting the sampling equipment (Photo 2.1 and Photo 2.2). In-situ water quality instruments were provided by TTT Environmental. Laboratory analyses and sample collection bottles were provided by SGS North America, Inc. (SGS).

Prior to sampling, aerial reconnaissance was conducted to identify possible inflow and outflow sources, and to determine if lakes were hydraulically connected to other nearby surface water sources. It was also confirmed that each lake was well-mixed and lacked definable strata prior to analytic sample collection.

Field sampling methods were based on U.S. Geological Survey (USGS 2006), Ward and Harr (1990), and U.S. Army Corps of Engineers methods (USACE 1987).

Safety precautions were followed, as outlined in the North Slope Water Resources 2015 Health, Safety, and Environmental Plan (Michael Baker 2015a) and the 2015 ASDP Water Quality Monitoring Job Safety Analysis (Michael Baker 2015b). Michael Baker employees worked in groups of two, and the helicopter remained on-site during the duration of the sampling process at Lake M9313. At lakes L9323 and L9324, Michael Baker employees checked in with Alpine security before and after sampling. Personnel were equipped with U.S. Coast Guard-approved Type III anti-exposure work suits with integrated flotation during sampling.

Photo 2.1: Equipment used to collect water quality data and samples; August 24, 2015

Photo 2.2: Recording in-situ water quality data; August 24, 2015
2.1 Sample Lake Locations

Previous in-situ monitoring of North Slope lakes indicates hydraulically isolated lakes are well-mixed during open water conditions. The likelihood of homogeneous conditions, which are verified at each lake with in-situ measurements, supports the use of single point sampling. For this project, it is assumed data collected at specific stations are representative of conditions throughout the well-mixed water body and thus, water samples collected at a single location are representative of the lake.

Selection of the appropriate location for samples was based on maximum lake depth and relative proximity to gravel facilities. The bathymetry of each lake was used to identify the deepest part of the water body, and a single representative sampling location was selected. The locations of the deepest part of lakes L9323, L9324, and M9313 were confirmed in 2010 using a hand-held sonar depth finder (Michael Baker 2010).

Sample locations were identified and confirmed using a handheld global positioning system Garmin Rino 520HCx referenced to the North American [horizontal] Datum of 1983. The sample location for lakes L9323 and L9324 are shown in Figure 2.1. Figure 2.2 shows the sample location for Lake M9313.
2.2 **In-Situ Water Quality Parameters**

In-situ water quality was measured at 2-foot intervals throughout the water column. A list of parameters collected is presented in Table 2.1.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Temperature</td>
<td>°C</td>
<td>degrees Celsius</td>
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<tr>
<td>Dissolved Oxygen</td>
<td>mg/L</td>
<td>milligrams per liter</td>
</tr>
<tr>
<td>Salinity</td>
<td>ppt</td>
<td>parts per thousand</td>
</tr>
<tr>
<td>Conductivity</td>
<td>µS/cm</td>
<td>microsiemens per centimeter</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>µS/cm</td>
<td>microsiemens per centimeter</td>
</tr>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>Nephelometric Turbidity Units</td>
</tr>
</tbody>
</table>

Conductivity is a measurement of the water’s ability to carry an electrical current. Dissolved salts (ions) are conductors of electrical current, and conductivity is proportional to the ion concentration (salinity) in an aqueous solution. The salinity is calculated using the in-situ conductivity, temperature and pressure measurements, and the conversions defined by the Practical Salinity Scale (PSS) of 1978 (YSI 2007). The PSS is derived for standard seawater with a known ion composition; therefore, using the PSS for freshwater with unknown ion composition provides an estimate of the salinity.

Specific conductance is a metric commonly used to report the concentration of salts in freshwater. Conductivity measurements are temperature dependent. Specific conductance is calculated from in-situ conductivity and temperature using a site specific temperature correction coefficient. The correction coefficient is determined for a site by relating the conductivity of a sample at the in-situ temperature and the conductivity of the same sample at 25°C. Michael Baker completed this analysis for the Colville River in 2005 resulting in a correction coefficient of 0.0196 (Michael Baker 2006). The recharge of lakes from the Colville River flood waters during spring break-up justifies using the same correction coefficient for the lake measurements.

Turbidity refers to the cloudiness of a fluid caused by suspended solids that tend to be invisible to the naked eye. As particles in a fluid will scatter light focused on them, turbidity can be measured by the quantity of reflected light for a given amount of particulates. A Nephelometer is equipped with a detector next to the light beam and is used to measure turbidity. When using a calibrated Nephelometer, the units of turbidity are Nephelometric Turbidity Units (NTU).

2.2.1 **Instrument Calibration**

A YSI 650 MDS handheld unit with YSI 6920 V2 Sonde sensor was calibrated by TTT Environmental according to the manufacturer’s specifications. The YSI 690 V2 meter was calibrated for conductivity by Michael Baker personnel the morning of sampling. In addition, a calibration check of the DO sensor was performed using tap water as directed by the manufacturer. An optical DO sensor was used for the DO sampling. Prior to each field sampling event, the meter was thoroughly rinsed with lake water.
2.3 LABORATORY SAMPLE COLLECTION AND ANALYSIS

2.3.1 SAMPLE COLLECTION

In-situ sampling was performed to confirm the water quality constituents were well-mixed within the water column at each sample location prior to laboratory sample collection. No oxyclines (notable change in oxygen concentration with depth) or thermoclines (notable change in temperature with depth) were apparent at any of lakes (Table 3.2). Therefore, a representative single point sample at mid-depth was collected at each location. In the event of significant lake stratification, multiple samples would have been collected throughout the water column and combined for laboratory analysis. Samples were collected from lakes using a 1.6” x 12” disposable polyethylene bailer (350 milliliter capacity). Nitrile gloves were worn during sample collection and changed between samples. A new bailer was used for each lake and discarded after use.

Sample bottles provided by SGS were stored in the provided cooler before, during, and after sample collection to maintain adequate storage temperatures and ensure chain of custody procedures were followed. Field samples were transported to SGS within 70 hours of initial sample collection. The procedures for transport and transfer are described in the SGS analysis report in Appendix A.

2.3.2 LABORATORY ANALYSIS

The laboratory analyses performed for each water sample obtained from lakes L9323, L9324, and M9313 included DRO, RRO, and RCRA metals.

2.3.3 DIESEL RANGE ORGANICS (AK 102)

The AK 102 method for DRO, developed by the Alaska Department of Environmental Conservation (ADEC), is based on a solvent extraction, gas chromatography (GC) procedure for the detection of semi-volatile petroleum products such as diesels. Other non-petroleum compounds of similar characteristics may be detected with this method. Samples spiked with a surrogate (o-Terphenyl) are extracted with methylene chloride. The GC is temperature programmed to facilitate separation of organic compounds detected by a flame ionization detector (FID). Quantification is based on FID response compared to a diesel calibration standard.

2.3.4 RESIDUAL RANGE ORGANICS (AK 103)

The AK 103 method for RRO, developed by ADEC, was originally designed to measure lubricating or motor oils and other heavy petroleum products in soils. The Underground Storage Tanks Procedures (ADEC 2009) identifies the method as adequate for determining such compounds in solution. The method is an extension of ADEC AK 102, employing solvent extractions and GC to identify heavier RRO. Quantification is based on FID response compared to a residuals calibration standard.

2.3.5 RCRA METALS (SW6020)

The RCRA metals laboratory analysis method SW6020, developed by the U.S. Environmental Protection Agency Office of Solid Waste, employs inductively coupled plasma (ICP) - mass spectrometry to determine trace elements, including metals in solution (EPA 2006). Elements
tested include: arsenic, barium, cadmium, chromium, lead, selenium, and silver. This method measures ions produced by a radio frequency ICP. High temperatures are used to produce ions, which are then entrained in a plasma gas and extracted. The ions are separated on the basis of their mass-to-charge ratio with a mass spectrometer.
3.0 2015 RESULTS

3.1 FIELD CONDITIONS - AUGUST 24, 2015

The average temperature during sampling on August 24, 2015 was 46 degrees Fahrenheit. The weather throughout the day was overcast with light winds (10 mph).

3.1.1 LAKE L9323

Located near CD4 and the Nigliq Channel, Lake L9323 is moderately sized with grassy banks and some vegetation on the periphery (Photo 3.1). Lake L9323 was hydraulically isolated at the time of sampling (Photo 3.2). No odor or film was observed while sampling the lake.

3.1.2 LAKE L9324

Located near CD4 and the Nigliq Channel, Lake L9324 is moderately sized with grassy banks and willows (Photo 3.3). Some large bluffs surround the lake. Lake L9324 was hydraulically isolated at the time of sampling (Photo 3.4). No odor or film was observed while sampling the lake.
3.1.3 LAKE M9313

Lake M9313, located near CD3 and the Ulamnigiaq Channel, is large with low grassy banks (Photo 3.5). At the time of sampling, Lake M9313 was connected to some areas of water ponded in adjacent polygons (Photo 3.6), but flow was not observed between water bodies. No odor or film was observed while sampling the lake.

3.2 IN-SITU RESULTS

In-situ measurements were collected throughout the water column at the deepest part of each lake. Based on the relative homogeneity of results in all locations, the study lakes were determined to be well-mixed at the time of sampling. The in-situ water quality results from the August 24, 2015 sampling event are tabulated in Table 3.1.
### 3.2.1 Specific Conductance

Specific conductance was considered homogenous throughout the water column at all sample locations, but was notably different between lakes. Measured values exceeding 500 µS/cm are indicative of saline environments which are usually observed in lakes near the coast (ADF&G 2008). The average specific conductance was 99 µS/cm in Lake L9323 and 140 µS/cm in Lake L9324. Average specific conductance in Lake M9313, located nearest to the coast, was 706 µS/cm.

### Table 3.1: In-Situ Water Quality Results

<table>
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<tr>
<th>Location Time</th>
<th>Total Depth (ft)</th>
<th>Turbidity (NTU)</th>
<th>Depth (ft)</th>
<th>Temp (°C)</th>
<th>Conductivity (µS/cm)</th>
<th>Specific Conductance (µS/cm)</th>
<th>DO (mg/L)</th>
<th>DO (Percent Saturation)</th>
<th>Salinity (ppt)</th>
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<td>2</td>
<td>6.50</td>
<td>63</td>
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<td>12.82</td>
<td>101.5</td>
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</tr>
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</table>

Notes:
1. Sample depth is measured from the water surface.
2. Turbidity, temperature, conductivity, dissolved oxygen, and salinity were measured using a YSI 650-6920V2 meter.
3. Turbidity is presented as an average of the sampled values in the water column.
4. Negative turbidity is typically traced to minute contamination of the zero calibration standard. According to the meter manufacturer, a used instrument can contaminate a zero standard to almost 1.0 NTU.
5. Specific conductance (referenced to 25°C) was obtained using a conversion coefficient of 0.0196 based on empirical data.
3.2.2 DISSOLVED OXYGEN AND WATER TEMPERATURE

The concentrations of DO were considered homogenous throughout the water column at all sample locations. In 2015, the average DO was measured at 12.71 mg/L in Lake L9323, 13.22 mg/L in Lake L9324, and 12.84 mg/L in Lake M9313. Compared to average DO values in 2014, the 2015 average DO value was slightly higher in all three lakes.

A 100% saturation level is based on standard temperature and pressure conditions. The average percent-saturation at Lake L9323 was 103.4%, Lake L9324 was 107.1%, and Lake M9313 was 101.7%. The percent-saturation levels fall within the typical range for these lakes.

There were no significant oxyclines or thermoclines at any of the sampling sites. Generally, oxygen saturation was consistent throughout the water column in all lakes.

Temperatures in all lakes ranged from a maximum of 6.5°C in Lake L9323 to a minimum of 5.3°C in Lake M9313. The temperature in all three lakes remained consistent with depth.

3.2.3 SALINITY

Salinity remained consistent with depth in all three lakes. The greatest concentration was measured in Lake M9313 at 0.34 ppt, likely due to its coastal proximity. Lakes L9323 and L9324 had concentrations of 0.05 ppt and 0.07 ppt, respectively.

3.2.4 TURBIDITY

Average turbidity for Lake M9313 was below 0.0 NTU. According to the meter manufacturer, a used instrument can contaminate a zero standard to almost 1.0 NTU. In addition, negative bias can result from interference because of absorbing particles, particle size, sample cell variations, particle density, and particle settling (Sadar 2004). As a result, the negative turbidity measurements for this lake can be interpreted as being close to 0.0 NTU. Average turbidity in lakes L9323 and L9324 was 0.7 NTU and 1.6 NTU, respectively.

3.3 LABORATORY RESULTS

With the exception of barium, analytical results show that targeted compounds and metals were not detected above the laboratory detection limit in lakes L9323, L9324, and M9313. Barium was detected in all lakes at concentrations below the ADEC cleanup level of 2.0 mg/L. The greatest measured concentration of barium was 0.211 mg/L in lake M9313. Barium is not uncommon in arctic waters at concentrations similar to those measured at the three lakes (Guay and Falkner 1998). Analytical results and the laboratory report are presented in Table 3.2 and Appendix A, respectively.

DRO and RRO were not detected above the laboratory detection limits in samples collected from lakes L9323, L9324, and M9313.
Table 3.2: Laboratory Analytical Results

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ADEC Cleanup Level¹ (mg/L)</th>
<th>Lake L9323 (mg/L)</th>
<th>Lake L9323² (mg/L)</th>
<th>Lake L9324 (mg/L)</th>
<th>Lake M9313 (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.01</td>
<td>ND²</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Barium</td>
<td>2.0</td>
<td>0.0431</td>
<td>0.0446</td>
<td>0.0777</td>
<td>0.211</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.005</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Chromium</td>
<td>0.1</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Lead</td>
<td>0.015</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.002</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Selenium</td>
<td>0.05</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Silver</td>
<td>0.1</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>DRO</td>
<td>1.5</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>RRO</td>
<td>1.1</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
</tbody>
</table>

1. ADEC Water Quality Standards 18 AAC 75.345 Table C Groundwater Cleanup Waters (ADEC 2009).
2. Duplicate sample
3. ND indicates analyte is not detected above the laboratory detection limit.

Source: SGS Laboratory Analysis Report 1154857
4.0 REFERENCES


Alaska Department of Fish and Game (ADF&G). 2008. Fish Habitat Permit FH04-111-0135 Amendment #1.


North Slope Borough (NSB). 2004 North Slope Borough Ordinance Serial No. 75-6-46


Dear Sara Eklund,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Forest at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Forest Taylor                                  Date
Project Manager
Forest.Taylor@sgs.com
Case Narrative

SGS Client: Michael Baker Jr., Inc.
SGS Project: 1154857
Project Name/Site: 2015 ASDP Water Quality
Project Contact: Sara Eklund

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.
Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

* The analyte has exceeded allowable regulatory or control limits.
! Surrogate out of control limits.
B Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB Closing Continuing Calibration Verification
CL Control Limit
D The analyte concentration is the result of a dilution.
DF Dilution Factor
DL Detection Limit (i.e., maximum method detection limit)
E The analyte result is above the calibrated range.
F Indicates value that is greater than or equal to the DL
GT Greater Than
IB Instrument Blank
ICV Initial Calibration Verification
J The quantitation is an estimation.
JL The analyte was positively identified, but the quantitation is a low estimation.
LCS(D) Laboratory Control Spike (Duplicate)
LOD Limit of Detection (i.e., 1/2 of the LOQ)
LOQ Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT Less Than
M A matrix effect was present.
MB Method Blank
MS(D) Matrix Spike (Duplicate)
ND Indicates the analyte is not detected.
Q QC parameter out of acceptance range.
R Rejected
RPD Relative Percent Difference
U Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.
## Sample Summary

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<tr>
<th>Client Sample ID</th>
<th>Lab Sample ID</th>
<th>Collected</th>
<th>Received</th>
<th>Matrix</th>
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<td>M9313</td>
<td>1154857001</td>
<td>08/24/2015</td>
<td>08/27/2015</td>
<td>Water (Surface, Eff., Ground)</td>
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<tr>
<td>L9324</td>
<td>1154857002</td>
<td>08/24/2015</td>
<td>08/27/2015</td>
<td>Water (Surface, Eff., Ground)</td>
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<tr>
<td>L9323</td>
<td>1154857003</td>
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<td>08/27/2015</td>
<td>Water (Surface, Eff., Ground)</td>
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<td>L9323 DUP</td>
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<table>
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<tr>
<th>Method</th>
<th>Method Description</th>
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<tbody>
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<td>Diesel/Residual Range Organics w/ Silica</td>
</tr>
<tr>
<td>AK103</td>
<td>Diesel/Residual Range Organics w/ Silica</td>
</tr>
<tr>
<td>AK102</td>
<td>Diesel/Residual Range Organics Water</td>
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<tr>
<td>AK103</td>
<td>Diesel/Residual Range Organics Water</td>
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<td>SW6020A</td>
<td>Metals by ICP-MS</td>
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<td>M9313</td>
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<td>Metals by ICP/MS</td>
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<td>Metals by ICP/MS</td>
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## Results by Metals by ICP/MS

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<th>DF</th>
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<td>5.00 U</td>
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<tr>
<td>Barium</td>
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<tr>
<td>Cadmium</td>
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<td>0.620</td>
<td>ug/L</td>
<td>5</td>
<td>08/31/15 17:31</td>
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</tr>
<tr>
<td>Chromium</td>
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<td>1.20</td>
<td>ug/L</td>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>Lead</td>
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<td>1.00</td>
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<td>ug/L</td>
<td>5</td>
<td>08/31/15 17:31</td>
<td></td>
</tr>
<tr>
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<tr>
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<td>6.20</td>
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<td>5</td>
<td>08/31/15 17:31</td>
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</tr>
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<td>2.00</td>
<td>0.620</td>
<td>ug/L</td>
<td>5</td>
<td>08/31/15 17:31</td>
<td></td>
</tr>
</tbody>
</table>

## Batch Information

- Analytical Batch: MMS9070
- Analytical Method: SW6020A
- Analyst: EAB
- Analytical Date/Time: 08/31/15 17:31
- Container ID: 1154857001-C

- Prep Batch: MXX29048
- Prep Method: SW3010A
- Prep Date/Time: 08/31/15 08:39
- Prep Initial Wt./Vol.: 25 mL
- Prep Extract Vol: 25 mL

Print Date: 10/01/2015 3:00:15PM

SGS North America Inc.

200 West Potter Drive Anchorage, AK 95518

t 907.562.2343 f 907.561.5301 www.us.sgs.com

Member of SGS Group
# Results of M9313

**Client Sample ID:** M9313  
**Client Project ID:** 2015 ASDP Water Quality  
**Lab Sample ID:** 1154857001  
**Lab Project ID:** 1154857

**Collection Date:** 08/24/15 11:00  
**Received Date:** 08/27/15 08:46  
**Matrix:** Water (Surface, Eff., Ground)

**Solids (%):**

**Location:**

## Results by Semivolatile Organic Fuels

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<th>DF</th>
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<th>Date Analyzed</th>
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</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>1.25 U</td>
<td>1.25</td>
<td>0.375</td>
<td>mg/L</td>
<td>1</td>
<td></td>
<td>09/15/15 02:10</td>
</tr>
</tbody>
</table>

### Surrogates

- **5α Androstane (surr):**
  - Result: 81.1
  - LOQ/CL: 50-150
  - Units: %
  - DF: 1
  - Analytical Date/Time: 09/15/15 02:10

### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 960 mL  
- **Prep Extract Vol:** 2 mL

## Residual Range Organics

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<tr>
<th>Parameter</th>
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<th>DL</th>
<th>Units</th>
<th>DF</th>
<th>Allowable Limits</th>
<th>Date Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Range Organics</td>
<td>1.04 U</td>
<td>1.04</td>
<td>0.313</td>
<td>mg/L</td>
<td>1</td>
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</tr>
</tbody>
</table>

### Surrogates

- **n-Triacontane-d62 (surr):**
  - Result: 91.1
  - LOQ/CL: 50-150
  - Units: %
  - DF: 1
  - Analytical Date/Time: 09/15/15 02:10

### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 960 mL  
- **Prep Extract Vol:** 2 mL

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Print Date: 10/01/2015 3:00:15PM

SGS North America Inc.  
200 West Potter Drive Anchorage, AK 95518  
t 907.562.2343 f 907.561.5301  www.us.sgs.com

Member of SGS Group
## Results of M9313

**Client Sample ID:** M9313  
**Client Project ID:** 2015 ASDP Water Quality  
**Lab Sample ID:** 1154857001  
**Lab Project ID:** 1154857  
**Collection Date:** 08/24/15 11:00  
**Received Date:** 08/27/15 08:46  
**Matrix:** Water (Surface, Eff., Ground)  
**Solids (%):**  
**Location:**

### Results by Semivolatile Organic Fuels Department, Silica G

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<th>Units</th>
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<tbody>
<tr>
<td>DRO Silica Gel</td>
<td>1.25 U</td>
<td>1.25</td>
<td>0.375</td>
<td>mg/L</td>
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<td>09/14/15 18:14</td>
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**Surrogates**

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<th>DF</th>
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<tbody>
<tr>
<td>Sa Androstane (surr)</td>
<td>76.1 %</td>
<td>50-150</td>
<td>%</td>
<td></td>
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</table>

### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 960 mL  
- **Prep Extract Vol:** 2 mL  

### Analytical Batch: XFC12086

- **Analytical Method:** AK102  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 02:10  
- **Container ID:** 1154857001-A  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 02:10  
- **Container ID:** 1154857001-A

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<tr>
<th>Parameter</th>
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<th>DF</th>
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<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>1.04 U</td>
<td>1.04</td>
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**Surrogates**

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<tbody>
<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>86.6 %</td>
<td>50-150</td>
<td>%</td>
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### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 960 mL  
- **Prep Extract Vol:** 2 mL  

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 960 mL  
- **Prep Extract Vol:** 2 mL
### Results of L9324

**Client Sample ID:** L9324  
**Client Project ID:** 2015 ASDP Water Quality  
**Lab Sample ID:** 1154857002  
**Lab Project ID:** 1154857  
**Collection Date:** 08/24/15 15:30  
**Received Date:** 08/27/15 08:46  
**Matrix:** Water (Surface, Eff., Ground)  
**Solids (%):**  
**Location:**

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### Results by Metals by ICP/MS

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<tr>
<th>Parameter</th>
<th>Result Qual</th>
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<th>DL</th>
<th>Units</th>
<th>DF</th>
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<tbody>
<tr>
<td>Arsenic</td>
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<tr>
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<td>2.00</td>
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<tr>
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<td>1.20</td>
<td>ug/L</td>
<td>5</td>
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</tr>
<tr>
<td>Lead</td>
<td>1.00 U</td>
<td>1.00</td>
<td>0.310</td>
<td>ug/L</td>
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<td>0.0620</td>
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<tr>
<td>Silver</td>
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<td>0.620</td>
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</tbody>
</table>

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### Batch Information

- **Analytical Batch:** MMS9070  
- **Analytical Method:** SW6020A  
- **Analyst:** EAB  
- **Analytical Date/Time:** 08/31/15 17:41  
- **Container ID:** 1154857002-C  
- **Prep Batch:** MXX29048  
- **Prep Method:** SW3010A  
- **Prep Date/Time:** 08/31/15 08:39  
- **Prep Initial Wt./Vol.:** 25 mL  
- **Prep Extract Vol:** 25 mL
### Results of L9324

- **Client Sample ID:** L9324  
- **Client Project ID:** 2015 ASDP Water Quality  
- **Lab Sample ID:** 1154857002  
- **Lab Project ID:** 1154857

#### Collection Date
- **Collection Date:** 08/24/15 15:30
- **Received Date:** 08/27/15 08:46

- **Matrix:** Water (Surface, Eff., Ground)
- **Solids (%):**
- **Location:**

#### Results by Semivolatile Organic Fuels

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<tr>
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<th>Result Qual</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
<th>DF</th>
<th>Allowable Limits</th>
<th>Date Analyzed</th>
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<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>1.27 U</td>
<td>1.27</td>
<td>0.381</td>
<td>mg/L</td>
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<td></td>
<td>09/15/15 02:31</td>
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</table>

**Surrogates**

- Sa Androstane (surr) 81% 50-150 % 1 09/15/15 02:31

#### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C
- **Prep Date/Time:** 09/04/15 09:22
- **Prep Initial Wt./Vol.:** 945 mL  
- **Prep Extract Vol:** 2 mL

### Residual Range Organics

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<th>Parameter</th>
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<th>DF</th>
<th>Allowable Limits</th>
<th>Date Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Range Organics</td>
<td>1.06 U</td>
<td>1.06</td>
<td>0.317</td>
<td>mg/L</td>
<td>1</td>
<td></td>
<td>09/15/15 02:31</td>
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</table>

**Surrogates**

- n-Triacontane-d62 (surr) 86.5% 50-150 % 1 09/15/15 02:31

#### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C
- **Prep Date/Time:** 09/04/15 09:22
- **Prep Initial Wt./Vol.:** 945 mL  
- **Prep Extract Vol:** 2 mL
### Results of L9324

- **Client Sample ID:** L9324
- **Client Project ID:** 2015 ASDP Water Quality
- **Lab Sample ID:** 1154857002
- **Lab Project ID:** 1154857
- **Collection Date:** 08/24/15 15:30
- **Received Date:** 08/27/15 08:46
- **Matrix:** Water (Surface, Eff., Ground)
- **Solids (%):**
- **Location:**

### Results by Semivolatile Organic Fuels Department, Silica G

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<tr>
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<tbody>
<tr>
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<td>1.27 U</td>
<td>1.27</td>
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**Surrogates**

- Sa Androstane (surr) 82.5 % 50-150 % 1 09/14/15 18:35

### Batch Information

- **Prep Batch:** XXX34045
- **Prep Method:** SW3520C
- **Prep Date/Time:** 09/04/15 09:22
- **Prep Initial Wt./Vol.:** 945 mL
- **Prep Extract Vol.:** 2 mL

<table>
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<tr>
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<th>Date Analyzed</th>
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<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>1.06 U</td>
<td>1.06</td>
<td>0.317</td>
<td>mg/L</td>
<td>1</td>
<td></td>
<td>09/14/15 18:35</td>
</tr>
</tbody>
</table>

**Surrogates**

- n-Triacontane-d62 (surr) 89.2 % 50-150 % 1 09/14/15 18:35

### Batch Information

- **Prep Batch:** XXX34045
- **Prep Method:** SW3520C
- **Prep Date/Time:** 09/04/15 09:22
- **Prep Initial Wt./Vol.:** 945 mL
- **Prep Extract Vol.:** 2 mL

---

Print Date: 10/01/2015 3:00:15PM

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**Results of L9323**

Client Sample ID: L9323  
Client Project ID: 2015 ASDP Water Quality  
Lab Sample ID: 1154857003  
Lab Project ID: 1154857

Collection Date: 08/24/15 17:00  
Received Date: 08/27/15 08:46  
Matrix: Water (Surface, Eff., Ground)  
Solids (%): Location:

**Results by Metals by ICP/MS**

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</thead>
<tbody>
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<td>5.00 U</td>
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<td>1.50</td>
<td>ug/L</td>
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</tr>
<tr>
<td>Barium</td>
<td>43.1</td>
<td>3.00</td>
<td>0.940</td>
<td>ug/L</td>
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<td>Cadmium</td>
<td>2.00 U</td>
<td>2.00</td>
<td>0.620</td>
<td>ug/L</td>
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<td></td>
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<tr>
<td>Chromium</td>
<td>4.00 U</td>
<td>4.00</td>
<td>1.20</td>
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<tr>
<td>Lead</td>
<td>1.00 U</td>
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<tr>
<td>Mercury</td>
<td>0.200 U</td>
<td>0.200</td>
<td>0.0620</td>
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<tr>
<td>Selenium</td>
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<td>20.0</td>
<td>6.20</td>
<td>ug/L</td>
<td>5</td>
<td></td>
<td>08/31/15 17:43</td>
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<tr>
<td>Silver</td>
<td>2.00 U</td>
<td>2.00</td>
<td>0.620</td>
<td>ug/L</td>
<td>5</td>
<td></td>
<td>08/31/15 17:43</td>
</tr>
</tbody>
</table>

**Batch Information**

- Analytical Batch: MMS9070
- Analytical Method: SW6020A
- Analyst: EAB
- Analytical Date/Time: 08/31/15 17:43
- Container ID: 1154857003-C

- Prep Batch: MXX29048
- Prep Method: SW3010A
- Prep Date/Time: 08/31/15 08:39
- Prep Initial Wt./Vol.: 25 mL
- Prep Extract Vol: 25 mL

Print Date: 10/01/2015 3:00:15PM

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### Results of L9323

Client Sample ID: **L9323**  
Client Project ID: **2015 ASDP Water Quality**  
Lab Sample ID: **1154857003**  
Lab Project ID: **1154857**  
Collection Date: **08/24/15 17:00**  
Received Date: **08/27/15 08:46**  
Matrix: **Water (Surface, Eff., Ground)**

#### Solids (%):

**Location:**

### Results by Semivolatile Organic Fuels

#### Diesel Range Organics

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</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>1.26 U</td>
<td>1.26</td>
<td>0.377</td>
<td>mg/L</td>
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<td></td>
<td>09/15/15 02:51</td>
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#### Surrogates

- **5a Androstane (surr):** 84.9 %, 50-150%, 09/15/15 02:51

### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 955 mL  

- **Prep Extract Vol:** 2 mL

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK102  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 02:51  
- **Container ID:** 1154857003-A

### Residual Range Organics

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<th>DL</th>
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<th>DF</th>
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<th>Date Analyzed</th>
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</thead>
<tbody>
<tr>
<td>Residual Range Organics</td>
<td>1.05 U</td>
<td>1.05</td>
<td>0.314</td>
<td>mg/L</td>
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</tbody>
</table>

#### Surrogates

- **n-Triacontane-d62 (surr):** 89.9 %, 50-150%, 09/15/15 02:51

### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 955 mL  
- **Prep Extract Vol:** 2 mL

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK103  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 02:51  
- **Container ID:** 1154857003-A
Results of L9323

Client Sample ID: L9323
Client Project ID: 2015 ASDP Water Quality
Lab Sample ID: 1154857003
Lab Project ID: 1154857

Collection Date: 08/24/15 17:00
Received Date: 08/27/15 08:46
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels Department, Silica G

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<tbody>
<tr>
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Surrogates

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<tr>
<td>Sa Androstane (surr)</td>
<td>77.4</td>
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<td>%</td>
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Batch Information

Prep Batch: XXX34045
Prep Method: SW3520C
Prep Date/Time: 09/04/15 09:22
Prep Initial Wt./Vol.: 955 mL
Prep Extract Vol: 2 mL

Analytical Batch: XFC12086
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/15/15 02:51
Container ID: 1154857003-A

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<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>1.05 U</td>
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<td>mg/L</td>
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Surrogates

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<tbody>
<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>82.8</td>
<td>50-150</td>
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Batch Information

Prep Batch: XXX34045
Prep Method: SW3520C
Prep Date/Time: 09/04/15 09:22
Prep Initial Wt./Vol.: 955 mL
Prep Extract Vol: 2 mL

Analytical Batch: XFC12086
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/15/15 02:51
Container ID: 1154857003-A

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Print Date: 10/01/2015 3:00:15PM
Results of L9323 DUP

Client Sample ID: L9323 DUP
Client Project ID: 2015 ASDP Water Quality
Lab Sample ID: 1154857004
Lab Project ID: 1154857

Collection Date: 08/24/15 17:00
Received Date: 08/27/15 08:46
Matrix: Water (Surface, Eff., Ground)
Solids (%): Location:

Results by Metals by ICP/MS

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<tr>
<th>Parameter</th>
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<th>DF</th>
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<tr>
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<td>5.00 U</td>
<td>5.00</td>
<td>1.50</td>
<td>ug/L</td>
<td>5</td>
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<tr>
<td>Barium</td>
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<td>3.00</td>
<td>0.940</td>
<td>ug/L</td>
<td>5</td>
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<tr>
<td>Cadmium</td>
<td>2.00 U</td>
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<td>0.620</td>
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<tr>
<td>Chromium</td>
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<tr>
<td>Lead</td>
<td>1.00 U</td>
<td>1.00</td>
<td>0.310</td>
<td>ug/L</td>
<td>5</td>
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<td>08/31/15 17:45</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.200 U</td>
<td>0.200</td>
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<tr>
<td>Selenium</td>
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<td>6.20</td>
<td>ug/L</td>
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<td>08/31/15 17:45</td>
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<tr>
<td>Silver</td>
<td>2.00 U</td>
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<td>0.620</td>
<td>ug/L</td>
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<td></td>
<td>08/31/15 17:45</td>
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Batch Information

Analytical Batch: MMS9070
Analytical Method: SW6020A
Analyst: EAB
Analytical Date/Time: 08/31/15 17:45
Container ID: 1154857004-C

Prep Batch: MXX29048
Prep Method: SW3010A
Prep Date/Time: 08/31/15 08:39
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Print Date: 10/01/2015 3:00:15PM
### Results of L9323 DUP

**Client Sample ID:** L9323 DUP  
**Client Project ID:** 2015 ASDP Water Quality  
**Lab Sample ID:** 1154857004  
**Lab Project ID:** 1154857  
**Collection Date:** 08/24/15 17:00  
**Received Date:** 08/27/15 08:46  
**Matrix:** Water (Surface, Eff., Ground)  

#### Results by Semivolatile Organic Fuels

<table>
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<tr>
<th>Parameter</th>
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<th>Units</th>
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<th>Allowable Limits</th>
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<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>1.24 U</td>
<td>1.24</td>
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<td>mg/L</td>
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<tr>
<td><strong>Surrogates</strong></td>
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<td>Sa Androstane (surr)</td>
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#### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 970 mL  
- **Prep Extract Vol:** 2 mL  

### Residual Range Organics

<table>
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<tr>
<th>Parameter</th>
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<th>Units</th>
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<th>Allowable Limits</th>
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<tbody>
<tr>
<td>Residual Range Organics</td>
<td>1.03 U</td>
<td>1.03</td>
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<td>mg/L</td>
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<td><strong>Surrogates</strong></td>
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<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>90.9</td>
<td>50-150</td>
<td>%</td>
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#### Batch Information

- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 970 mL  
- **Prep Extract Vol:** 2 mL  

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Print Date: 10/01/2015 3:00:15PM

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### Results of L9323 DUP

**Client Sample ID:** L9323 DUP  
**Client Project ID:** 2015 ASDP Water Quality  
**Lab Sample ID:** 1154857004  
**Lab Project ID:** 1154857

**Collection Date:** 08/24/15 17:00  
**Received Date:** 08/27/15 08:46  
**Matrix:** Water (Surface, Eff., Ground)

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### Results by Semivolatile Organic Fuels Department, Silica G

<table>
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<tr>
<th>Parameter</th>
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<th>Units</th>
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<th>Date Analyzed</th>
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<tbody>
<tr>
<td>DRO Silica Gel</td>
<td>1.24 U</td>
<td>1.24</td>
<td>0.371</td>
<td>mg/L</td>
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<tr>
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<td>5a Androstane (surr)</td>
<td>67.6 %</td>
<td>50-150</td>
<td>%</td>
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**Batch Information**

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK102  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 03:12  
- **Container ID:** 1154857004-A  
- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 970 mL  
- **Prep Extract Vol.:** 2 mL

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<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
<th>DF</th>
<th>Allowable Limits</th>
<th>Date Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>1.03 U</td>
<td>1.03</td>
<td>0.309</td>
<td>mg/L</td>
<td>1</td>
<td></td>
<td>09/14/15 19:16</td>
</tr>
<tr>
<td>Surrogates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>82.8 %</td>
<td>50-150</td>
<td>%</td>
<td>1</td>
<td></td>
<td></td>
<td>09/14/15 19:16</td>
</tr>
</tbody>
</table>

**Batch Information**

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK103  
- **Analyst:** KJO  
- **Analytical Date/Time:** 09/15/15 03:12  
- **Container ID:** 1154857004-A  
- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/15 09:22  
- **Prep Initial Wt./Vol.:** 970 mL  
- **Prep Extract Vol.:** 2 mL

---

Print Date: 10/01/2015 3:00:15PM

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### Method Blank

Blank ID: MB for HBN 1718868 [MXX/29048]  
Blank Lab ID: 1287412  
Matrix: Water (Surface, Eff., Ground)  
QC for Samples:  
1154857001, 1154857002, 1154857003, 1154857004

### Results by SW6020A

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>2.50U</td>
<td>5.00</td>
<td>1.50</td>
<td>ug/L</td>
</tr>
<tr>
<td>Barium</td>
<td>1.50U</td>
<td>3.00</td>
<td>0.940</td>
<td>ug/L</td>
</tr>
<tr>
<td>Cadmium</td>
<td>1.00U</td>
<td>2.00</td>
<td>0.620</td>
<td>ug/L</td>
</tr>
<tr>
<td>Chromium</td>
<td>2.00U</td>
<td>4.00</td>
<td>1.20</td>
<td>ug/L</td>
</tr>
<tr>
<td>Lead</td>
<td>0.500U</td>
<td>1.00</td>
<td>0.310</td>
<td>ug/L</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.100U</td>
<td>0.200</td>
<td>0.0620</td>
<td>ug/L</td>
</tr>
<tr>
<td>Selenium</td>
<td>10.0U</td>
<td>20.0</td>
<td>6.20</td>
<td>ug/L</td>
</tr>
<tr>
<td>Silver</td>
<td>1.00U</td>
<td>2.00</td>
<td>0.620</td>
<td>ug/L</td>
</tr>
</tbody>
</table>

### Batch Information

- Analytical Batch: MMS9070  
- Analytical Method: SW6020A  
- Instrument: Perkin Elmer Sciex ICP-MS P3  
- Analyst: EAB  
- Analytical Date/Time: 8/31/2015 4:44:52PM  
- Prep Batch: MXX29048  
- Prep Method: SW3010A  
- Prep Date/Time: 8/31/2015 8:39:25AM  
- Prep Initial Wt./Vol.: 25 mL  
- Prep Extract Vol: 25 mL

Print Date: 10/01/2015 3:00:37PM

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Member of SGS Group
### Blank Spike Summary

- **Blank Spike ID:** LCS for HBN 1154857 [MXX29048]
- **Blank Spike Lab ID:** 1287413
- **Date Analyzed:** 08/31/2015 16:47
- **Matrix:** Water (Surface, Eff., Ground)
- **QC for Samples:** 1154857001, 1154857002, 1154857003, 1154857004

### Results by SW6020A

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>1000</td>
<td>1020</td>
<td>102</td>
<td>(84-116 )</td>
</tr>
<tr>
<td>Barium</td>
<td>1000</td>
<td>993</td>
<td>99</td>
<td>(86-114 )</td>
</tr>
<tr>
<td>Cadmium</td>
<td>100</td>
<td>101</td>
<td>101</td>
<td>(87-115 )</td>
</tr>
<tr>
<td>Chromium</td>
<td>400</td>
<td>406</td>
<td>101</td>
<td>(85-116 )</td>
</tr>
<tr>
<td>Lead</td>
<td>1000</td>
<td>1060</td>
<td>106</td>
<td>(88-115 )</td>
</tr>
<tr>
<td>Mercury</td>
<td>10</td>
<td>10.5</td>
<td>105</td>
<td>(70-124 )</td>
</tr>
<tr>
<td>Selenium</td>
<td>1000</td>
<td>1020</td>
<td>102</td>
<td>(80-120 )</td>
</tr>
<tr>
<td>Silver</td>
<td>100</td>
<td>104</td>
<td>104</td>
<td>(85-116 )</td>
</tr>
</tbody>
</table>

### Batch Information

- **Analytical Batch:** MMS9070
- **Analytical Method:** SW6020A
- **Instrument:** Perkin Elmer Sciex ICP-MS P3
- **Analyst:** EAB

- **Prep Batch:** MXX29048
- **Prep Method:** SW3010A
- **Prep Date/Time:** 08/31/2015 08:39
- **Spike Init Wt./Vol.:** 1000 ug/L  Extract Vol: 25 mL
- **Dupe Init Wt./Vol.:**  Extract Vol:
### Matrix Spike Summary

Original Sample ID: 1287425  
MS Sample ID: 1287414 MS  
MSD Sample ID: 1287415 MSD  
Analysis Date: 08/31/2015 16:49  
Analysis Date: 08/31/2015 16:51  
Analysis Date: 08/31/2015 16:54  
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154857001, 1154857002, 1154857003, 1154857004

---

### Results by SW6020A

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample Spike</th>
<th>Spike Result</th>
<th>Spike Rec (%)</th>
<th>Spike</th>
<th>Result</th>
<th>Result Rec (%)</th>
<th>CL</th>
<th>RPD (%)</th>
<th>RPD CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>2.50U</td>
<td>1000</td>
<td>103</td>
<td>1000</td>
<td>1020</td>
<td>84-116</td>
<td>1.08</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Barium</td>
<td>16.5</td>
<td>1000</td>
<td>991</td>
<td>1000</td>
<td>984</td>
<td>86-114</td>
<td>0.74</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Cadmium</td>
<td>1.00U</td>
<td>1000</td>
<td>100</td>
<td>1000</td>
<td>99.8</td>
<td>87-115</td>
<td>0.40</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>2.00U</td>
<td>400</td>
<td>100</td>
<td>400</td>
<td>398</td>
<td>85-116</td>
<td>0.81</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>0.500U</td>
<td>1000</td>
<td>106</td>
<td>1000</td>
<td>104</td>
<td>88-115</td>
<td>1.97</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Mercury</td>
<td>0.100U</td>
<td>10.0</td>
<td>10.1</td>
<td>10.0</td>
<td>10.3</td>
<td>70-124</td>
<td>1.52</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Selenium</td>
<td>10.0U</td>
<td>1000</td>
<td>103</td>
<td>1000</td>
<td>101</td>
<td>80-120</td>
<td>1.12</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
<tr>
<td>Silver</td>
<td>1.00U</td>
<td>100</td>
<td>102</td>
<td>100</td>
<td>101</td>
<td>85-116</td>
<td>0.47</td>
<td>(&lt; 20)</td>
<td></td>
</tr>
</tbody>
</table>

### Batch Information

- **Analytical Batch**: MMS9070  
- **Analytical Method**: SW6020A  
- **Instrument**: Perkin Elmer Sciex ICP-MS P3  
- **Prep Batch**: MXX29048  
- **Prep Method**: 3010 H2O Digest for Metals ICP-MS  
- **Prep Date/Time**: 8/31/2015 8:39:25AM  
- **Prep Initial Wt./Vol.**: 25.00mL  
- **Prep Extract Vol**: 25.00mL  
- **Prep Date/Time**: 8/31/2015 4:51:57PM

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Print Date: 10/01/2015 3:00:41PM  
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## Method Blank

Blank ID: MB for HBN 1719250 [XXX/34044]  
Blank Lab ID: 1288490  
Matrix: Water (Surface, Eff., Ground)  
QC for Samples:  
1154857001, 1154857002, 1154857003, 1154857004

## Results by AK102

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO Silica Gel</td>
<td>0.418J</td>
<td>1.20</td>
<td>0.360</td>
<td>mg/L</td>
</tr>
</tbody>
</table>

### Surrogates

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5α Androstane (surr)</td>
<td>75.7</td>
<td>70-125</td>
<td>%</td>
</tr>
</tbody>
</table>

## Batch Information

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK102  
- **Instrument:** HP 7890A FID SV E F  
- **Analyst:** KJO  
- **Analytical Date/Time:** 9/14/2015 12:24:00PM

- **Prep Batch:** XXX34044  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 9/4/2015 9:22:18AM  
- **Prep Initial Wt./Vol.:** 1000 mL  
- **Prep Extract Vol.:** 2 mL

---

Print Date: 10/01/2015 3:00:41PM
## Blank Spike Summary

Blank Spike ID: LCS for HBN 1154857 [XXX34044]  
Blank Spike Lab ID: 1288491  
Date Analyzed: 09/14/2015 12:45

Spike Duplicate ID: LCSD for HBN 1154857  
Spike Duplicate Lab ID: 1288492  
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154857001, 1154857002, 1154857003, 1154857004

## Results by AK102

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Blank Spike (mg/L)</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>CL</th>
<th>RPD (%)</th>
<th>RPD CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO Silica Gel</td>
<td></td>
<td>10</td>
<td>9.16</td>
<td>92</td>
<td>10</td>
<td>8.83</td>
<td>88</td>
<td>CL</td>
<td>3.80</td>
<td>(&lt; 20 )</td>
</tr>
<tr>
<td>5a Androstane (surr)</td>
<td></td>
<td>0.2</td>
<td>85</td>
<td>85</td>
<td>0.2</td>
<td>85.8</td>
<td>86</td>
<td>( 70-125 )</td>
<td>0.95</td>
<td></td>
</tr>
</tbody>
</table>

## Batch Information

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK102  
- **Instrument:** HP 7890A FID SV E F  
- **Analyst:** KJO

- **Prep Batch:** XXX34044  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/2015 09:22  
- **Spike Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL  
- **Dupe Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL
Method Blank

Blank ID: MB for HBN 1719250 [XXX/34044]  
Blank Lab ID: 1288490  
Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1154857001, 1154857002, 1154857003, 1154857004

Results by AK103

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>0.500U</td>
<td>1.00</td>
<td>0.300</td>
<td>mg/L</td>
</tr>
<tr>
<td>Surrogates</td>
<td>84.1</td>
<td>70-125</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>70-125</td>
<td>%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Batch Information

Analytical Batch: XFC12086  
Analytical Method: AK103  
Instrument: HP 7890A FID SV E F  
Analyst: KJO  
Analytical Date/Time: 9/14/2015 12:24:00PM  
Prep Batch: XXX34044  
Prep Method: SW3520C  
Prep Initial Wt./Vol.: 1000 mL  
Prep Extract Vol.: 2 mL
### Blank Spike Summary

**Blank Spike ID:** LCS for HBN 1154857 [XXX34044]  
**Blank Spike Lab ID:** 1288491  
**Date Analyzed:** 09/14/2015 12:45  
**QC for Samples:** 1154857001, 1154857002, 1154857003, 1154857004  
**Matrix:** Water (Surface, Eff., Ground)

### Results by AK103

#### Blank Spike (mg/L)  
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>CL</th>
<th>RPD (%)</th>
<th>RPD CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRO Silica Gel</td>
<td>10</td>
<td>9.02</td>
<td>90</td>
<td>10</td>
<td>8.91</td>
<td>89</td>
<td>(70-125)</td>
<td>1.30</td>
<td>(&lt; 20 )</td>
</tr>
</tbody>
</table>

#### Surrogates  
- **n-Triacontane-d62 (surr)**  
  - Spike: 0.2  
  - Result: 86.5  
  - Rec (%): 87  
  - Spike: 0.2  
  - Result: 87.2  
  - Rec (%): 87  
  - CL: (70-125)  
  - RPD (%): 0.79  
  - RPD CL: (< 20 )

### Batch Information

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK103  
- **Instrument:** HP 7890A FID SV E F  
- **Prep Batch:** XXX34044  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/2015 09:22  
- **Spike Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL  
- **Dupe Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL
Method Blank

Blank Lab ID: 1288493
QC for Samples:
1154857001, 1154857002, 1154857003, 1154857004

Results by AK102

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td>0.600U</td>
<td>1.20</td>
<td>0.360</td>
<td>mg/L</td>
</tr>
<tr>
<td>Surrogates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5α Androstane (surr)</td>
<td>82.6</td>
<td>60-120</td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

Batch Information

Analytical Batch: XFC12086  Prep Batch: XXX34045
Analytical Method: AK102    Prep Method: SW3520C
Analyst: KJO               Prep Initial Wt./Vol.: 1000 mL
Analytical Date/Time: 9/14/2015 8:18:00PM Prep Extract Vol: 2 mL

Print Date: 10/01/2015 3:00:48PM
Blank Spike Summary

Blank Spike ID: LCS for HBN 1154857 [XXX34045]
Blank Spike Lab ID: 1288494
Date Analyzed: 09/14/2015 20:39

Spike Duplicate ID: LCSD for HBN 1154857
Spike Duplicate Lab ID: 1288495
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1154857001, 1154857002, 1154857003, 1154857004

Results by AK102

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Blank Spike (mg/L)</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>Spike</th>
<th>Result</th>
<th>Rec (%)</th>
<th>CL</th>
<th>RPD (%)</th>
<th>RPD CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Range Organics</td>
<td></td>
<td>10</td>
<td>9.36</td>
<td>94</td>
<td>10</td>
<td>9.50</td>
<td>95</td>
<td>(75-125)</td>
<td>1.40</td>
<td>(&lt;20)</td>
</tr>
<tr>
<td>Surrogates</td>
<td></td>
<td>0.2</td>
<td>92</td>
<td>92</td>
<td>0.2</td>
<td>91.3</td>
<td>91</td>
<td>(60-120)</td>
<td>0.79</td>
<td></td>
</tr>
</tbody>
</table>

Batch Information

Analytical Batch: XFC12086
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: KJO

Prep Batch: XXX34045
Prep Method: SW3520C
Prep Date/Time: 09/04/2015 09:22
Spike Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
Dupe Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
### Method Blank

Blank ID: MB for HBN 1719251 [XXX/34045]  
Blank Lab ID: 1288493  
Matrix: Water (Surface, Eff., Ground)

QC for Samples:  
1154857001, 1154857002, 1154857003, 1154857004

### Results by AK103

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
<th>LOQ/CL</th>
<th>DL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Range Organics</td>
<td>0.500U</td>
<td>1.00</td>
<td>0.300</td>
<td>mg/L</td>
</tr>
<tr>
<td>Surrogates n-Triacontane-d62 (surr)</td>
<td>91</td>
<td>60-120</td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

### Batch Information

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK103  
- **Instrument:** HP 7890A FID SV E F  
- **Analyst:** KJO  
- **Analytical Date/Time:** 9/14/2015 8:18:00PM  
- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 9/4/2015 9:22:42AM  
- **Prep Initial Wt./Vol.:** 1000 mL  
- **Prep Extract Vol.:** 2 mL
### Blank Spike Summary

Blank Spike ID: LCS for HBN 1154857 [XXX34045]  
Spike Duplicate ID: LCSD for HBN 1154857 [XXX34045]  
Blank Spike Lab ID: 1288494  
Spike Duplicate Lab ID: 1288495  
Date Analyzed: 09/14/2015 20:39  
Matrix: Water (Surface, Eff., Ground)  
QC for Samples: 1154857001, 1154857002, 1154857003, 1154857004

### Results by AK103

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Blank Spike (mg/L)</th>
<th>Spike Duplicate (mg/L)</th>
<th>RPD (%)</th>
<th>RPD CL (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spike</td>
<td>Result</td>
<td>Rec (%)</td>
<td>Spike</td>
</tr>
<tr>
<td>Residual Range Organics</td>
<td>10</td>
<td>9.13</td>
<td>91</td>
<td>10</td>
</tr>
<tr>
<td>Surrogates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n-Triacontane-d62 (surr)</td>
<td>0.2</td>
<td>94.7</td>
<td>95</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Batch Information

- **Analytical Batch:** XFC12086  
- **Analytical Method:** AK103  
- **Instrument:** HP 7890A FID SV E F  
- **Analyst:** KJO  
- **Prep Batch:** XXX34045  
- **Prep Method:** SW3520C  
- **Prep Date/Time:** 09/04/2015 09:22  
- **Spike Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL  
- **Dupe Init Wt./Vol.:** 10 mg/L  
- **Extract Vol.:** 2 mL
<table>
<thead>
<tr>
<th>Sample Identification</th>
<th>Date MM/DD/YY</th>
<th>Time HH:MM</th>
<th>Matrix/Matrix Code</th>
<th>CONTAINERS</th>
<th>SAMPLE TYPE</th>
<th>PRESERVATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M9313</td>
<td>08/24/2015</td>
<td>11:00</td>
<td>Water</td>
<td>3</td>
<td>G</td>
<td>✓</td>
</tr>
<tr>
<td>L9324</td>
<td>08/24/2015</td>
<td>15:30</td>
<td>Water</td>
<td>3</td>
<td>G</td>
<td>✓</td>
</tr>
<tr>
<td>L9323</td>
<td>08/24/2015</td>
<td>17:00</td>
<td>Water</td>
<td>6</td>
<td>G</td>
<td>✓</td>
</tr>
</tbody>
</table>

**SECTION 5**

<table>
<thead>
<tr>
<th>Relinquished By: (1)</th>
<th>Date</th>
<th>Time</th>
<th>Received By:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jen Gillenwater</td>
<td>08/27/2015</td>
<td>08:40</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION 4**

- DOD Project: NO
- DATA DELIVERABLE REQUIREMENTS:
- Requested Turnaround Time and/or Special Instructions:
**SAMPLE RECEIPT FORM**

### Review Criteria:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>N/A</th>
<th>No</th>
<th>Comments/Action Taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were custody seals intact? Note # &amp; location, if applicable.</td>
<td></td>
<td></td>
<td>✔</td>
<td>Exemption permitted if sampler hand carries/delivers.</td>
</tr>
<tr>
<td>COC accompanied samples?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature blank</strong> compliant* (i.e., 0-6°C after CF)?</td>
<td></td>
<td>✔</td>
<td></td>
<td>Exemption permitted if chilled &amp; collected &lt;8 hrs ago.</td>
</tr>
<tr>
<td>If &gt;6°C, were samples collected &lt;8 hours ago?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If &lt;0°C, were all sample containers ice free?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler ID: 1 @ 1.0 w/ Therm.ID: D2</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler ID: @ @ w/ Therm.ID:</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler ID: @ @ w/ Therm.ID:</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler ID: @ @ w/ Therm.ID:</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooler ID: @ @ w/ Therm.ID:</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If samples are received without a temperature blank, the “cooler temperature” will be documented in lieu of the temperature blank &amp; “COOLER TEMP” will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note “ambient” or “chilled.”</td>
<td></td>
<td>✔</td>
<td></td>
<td>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</td>
</tr>
<tr>
<td>Delivery method (specify all that apply):</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□UPS □Lynden □AK Air □Alert Courier</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□FedEx □RAVN □C&amp;D Delivery</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>□Carlile □Pen Air □ Warp Speed □ Other: _____</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>➔ For WO# with airbills, was the WO# &amp; airbill info recorded in the Front Counter eLog?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>N/A</th>
<th>No</th>
<th>Comments/Action Taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were samples received within hold time?</td>
<td>✔</td>
<td></td>
<td></td>
<td>Note: Refer to form F-083 “Sample Guide” for hold times. Note: If times differ &lt;1hr, record details and login per COC.</td>
</tr>
<tr>
<td>Do samples match COC* (i.e., sample IDs, dates/times collected)?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were analyses requested unambiguous?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were samples in good condition (no leaks/cracks/breakage)?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packing material used (specify all that apply):</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Bubble Wrap</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Separate plastic bags □ Vermiculite □ Other:</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were proper containers (type/mass/volume/preservative*) used?</td>
<td>✔</td>
<td></td>
<td></td>
<td>Exemption permitted for metals (e.g., 200.8/6020A).</td>
</tr>
<tr>
<td>Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were all soil VOAs field extracted with MeOH+BFB?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was pH verified and compliant?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If pH was adjusted, were bottles flagged (i.e., stickers)?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For special handling (e.g., “MI” soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For RUSH/SHORT Hold Time, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For SITE-SPECIFIC QC, e.g., BMS/BMSD/BDUP, were containers / paperwork flagged accordingly?</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For any question answered “No,” has the PM been notified and the problem resolved (or paperwork put in their bin)?</td>
<td>✔</td>
<td></td>
<td></td>
<td>SRF Completed by: KPV 8/27/15 PM notified:</td>
</tr>
<tr>
<td>Was PEER REVIEW of sample numbering/labeling completed?</td>
<td>✔</td>
<td></td>
<td></td>
<td>Peer Reviewed by: VDL</td>
</tr>
</tbody>
</table>

### Additional notes (if applicable):

**Note to Client:** Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.
Sample Containers and Preservatives

<table>
<thead>
<tr>
<th>Container Id</th>
<th>Preservative</th>
<th>Container Condition</th>
<th>Container Id</th>
<th>Preservative</th>
<th>Container Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1154857001-A</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
<td>1154857001-B</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
</tr>
<tr>
<td>1154857001-C</td>
<td>HNO3 to pH &lt; 2</td>
<td>OK</td>
<td>1154857002-A</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
</tr>
<tr>
<td>1154857002-B</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
<td>1154857002-C</td>
<td>HNO3 to pH &lt; 2</td>
<td>OK</td>
</tr>
<tr>
<td>1154857003-A</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
<td>1154857003-B</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
</tr>
<tr>
<td>1154857003-C</td>
<td>HNO3 to pH &lt; 2</td>
<td>OK</td>
<td>1154857004-A</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
</tr>
<tr>
<td>1154857004-B</td>
<td>HCL to pH &lt; 2</td>
<td>OK</td>
<td>1154857004-C</td>
<td>HNO3 to pH &lt; 2</td>
<td>OK</td>
</tr>
</tbody>
</table>

**Container Condition Glossary**

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates an inappropriate container was submitted.

- **OK** - The container was received at an acceptable pH for the analysis requested.
- **PA** - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
- **PH** - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
- **BU** - The container was received with headspace greater than 6mm.

8/27/2015