

## Transmittal

<p>To: Alaska Department of Environmental Conservation           555 Cordova Street           Anchorage, Alaska 99503</p>	<p>Attn: Mr. Dennis Harwood           Date: June 30 2010           Job # 31-1-11472-001           Re: ADOT&amp;PF Northway Maintenance Station, Mile 1,256 Alaska Highway, Alaska</p>
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2	Site Characterization Report

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Site Characterization Report  
ADOT&PF Northway Maintenance Station  
Mile 1,256 Alaska Highway, Alaska

June 2010

Submitted To:  
Alaska Department of Environmental  
Conservation  
55 Cordova Street  
Anchorage, Alaska 99503

By:  
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31-1-11472-001

SHANNON & WILSON, INC.

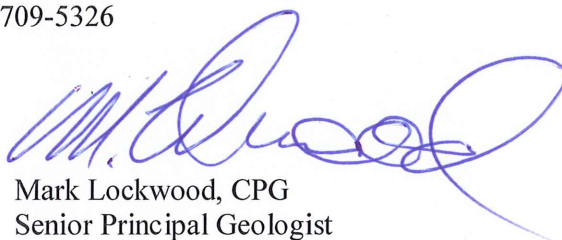
**SITE CHARACTERIZATION REPORT  
ADOT&PF NORTHWAY MAINTENANCE STATION  
MILE 1,256 ALASKA HIGHWAY, ALASKA**

June 30, 2010

Prepared by:

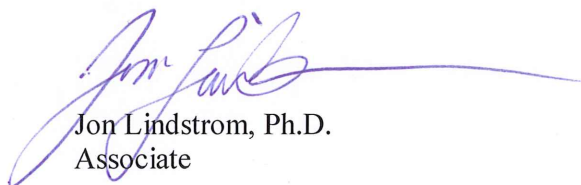
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**SITE CHARACTERIZATION REPORT  
ADOT&PF NORTHWAY MAINTENANCE STATION  
MILE 1,256 ALASKA HIGHWAY, ALASKA**

**1.0 INTRODUCTION**

We are pleased to present this report on our site characterization at the Alaska Department of Transportation and Public Facilities (ADOT&PF) Northway Maintenance Station (NMS), Mile 1,256 Alaska Highway, Alaska. The objectives of this site characterization were to: 1) sample the NMS water-supply well; 2) develop a site-control plan for the well; 3) update the conceptual site model (CSM) with data from pore-water samples and neighboring wells; 4) assess access to the areas of the burn pit and dry well; and 5) determine treatment/disposal options for contaminated soil stockpiled during the 2007 aboveground storage tank (AST) demolition.

We provided our services using the methods described in our Northway Site Characterizations Work Plan (WP), and in accordance with our site safety and health plan and the provisions of our Contaminated Sites term contract #18-9028-14. Our services were based on the Alaska Department of Environmental Conservation (ADEC) request for proposal (RFP) dated May 27, 2009, and our Proposal dated July 8, 2009.

**2.0 BACKGROUND**

**2.1 Site Location and Description**

The ADOT&PF NMS is about 165 miles south of Delta Junction, at Mile 1,256 of the Alaska Highway (Figure 1). The property has been leased by the State of Alaska from the U.S. Fish and Wildlife Service (USF&WS) since 1986; it is the location of the former Haines/Fairbanks Pipeline Lakeview Pump Station. The site is fenced, generally level, and developed with a metal shop and storage buildings (Figure 2). The site is bounded on the east by the Richardson Highway and by Yarger Lake on the west.

The area surrounding the site is sparsely populated. A cabin and a USF&WS float-plane refueling station are south of the NMS; there is another cabin north of the NMS (Figure 2); our well search (described below) indicated neither cabin has a water-supply well. A public campground maintained by the USF&WS Tetlin National Wildlife Refuge is about ½ mile

northwest of the NMS (Figure 1); there is a hand-pump water-supply well at the campground. A notice at the campground well warns users of the presence of elevated levels of nitrate in the water.

## 2.2 Subsurface Conditions

Site geology generally consists of granitic bedrock mantled by 1 foot to 2 feet of silt. The depth to bedrock likely varies throughout the site, depending on the amount of fill. The shop building appears to be constructed on fill consisting of weathered granite from a borrow pit east of the Alaska Highway. Groundwater in the area of the site is likely restricted to fracture zones within the granitic bedrock.

## 2.3 Site History and Previous Work

The site was first developed by the U.S. Army in 1954 during construction of the Haines Pipeline. A 1968 air photo shows the completed Lakeview Pump Station with two vertical ASTs, pump building, storage shed, and residence trailers. The site appears to have been built on fill. A septic system gathered effluent from the pump/shop building and residence quarters, formerly west of the shop. U.S. Army Corps of Engineer (USACE) as-built drawings show a dry well outside the south end of the pump building (Figure 3). There are floor drains in the shop bay; according to the as-built drawings, the floor drains were connected to the dry well. According to Dave Johnson with ADOT&PF Operations & Maintenance, the floor drains were connected to a closed system/holding tank in 2000; the ADOT&PF pumps the tank periodically. The as-built drawings also show a burn pit and transfer piping north of the pump building that may have been used to incinerate fuel spills from the pumps (Figure 4).

The ADOT&PF began occupying the site in 1986, at which time they obtained water by truck from the U.S./Canadian border. They later rehabilitated the on-site well; in 1988, a sample from the well contained 270 µg/L benzene. According to the ADOT&PF site foreman, a charcoal filter was installed. In 1992, a heating-oil underground storage tank (UST) was removed from the area north of the existing pump island. The former septic system was abandoned in 2000 and a new septic system installed to handle sewage.

The U.S. Army Pacific Environmental Health Agency (USAPACEHEA) conducted a site assessment in 1994, which included the collection and analysis of 13 soil samples. The samples were collected by hand from depths ranging between 12 inches and 24 inches below the ground surface (bgs). Three samples exceeded the cleanup level for total petroleum hydrocarbons



(TPH); TPH ranged from 530 to 3,500 parts per million (ppm). As these samples consisted of near-surface soil, the contamination was likely the result of surface releases.

Water samples collected from the on-site well in 2006 contained benzene and gasoline range organics (GRO) exceeding ADEC cleanup levels. Following receipt of the sample results, the ADOT&PF installed a water holding-tank at the site and began obtaining drinking water by truck from off-site.

In October 2006, Shannon & Wilson collected soil samples from 12 test pits at the site targeting hot spots identified by the USAPACEHEA, fuel-handling and storage areas, and the septic-discharge area. Sample results did not indicate the presence of widespread soil contamination; however, diesel range organics (DRO) exceeding the ADEC cleanup level were detected near the AST dispenser island. The results of the study are presented in our report *Site Investigation, ADOT&PF Northway Maintenance Station, Mile 1256 Alaska Highway, Alaska*, dated April 2007.

Shannon & Wilson observed the removal of three ASTs and piping in 2007, and stockpiled approximately 400 cubic yards of DRO-, GRO-, and benzene-contaminated soil. The source of the contamination appeared to be from a cracked gasoline pipe and leaking fittings in the diesel piping. The ADOT&PF installed new double-wall ASTs following demolition. A groundwater sample collected from the on-site well on September 17, 2007, contained GRO at a concentration of 1.62 µg/L and benzene at 509 µg/L. The results of the demolition are presented in our report *Closure Report, AST Demolition, ADOT&PF Northway Maintenance Station, Mile 1256 Alaska Highway, Alaska*, dated June 2008.

In 2007, the USF&WS prepared an environmental document entitled *Tetlin National Wildlife Refuge Contaminant Assessment (TCA)*, summarizing site-ownership history, former and current uses of the site, and known contamination issues. The Lakeview Pump Station section of the TCA is included in Appendix A.

## **2.4 Cleanup Levels**

ADEC has established soil cleanup levels in 18 AAC 75.340. Cleanup levels applicable to this site are the Method 2, Under 40-inch precipitation zone levels listed in 18 AAC 75.341. Groundwater cleanup levels are listed in 18 AAC 75.345 Table C.

## 2.5 Project Objectives

The primary objectives of our work were to: 1) sample the on-site water supply well; 2) develop a site-control plan for the well; 3) update the CSM with data from pore-water samples and neighboring wells; 4) assess the access to the areas of the burn pit and dry well; and 5) determine treatment/disposal options for contaminated soil stockpiled during the 2007 demolition of the ASTs.

Groundwater contamination was confirmed by previous sampling; therefore, the objective of groundwater sampling was to better characterize contamination and check for seasonal variability.

## 3.0 SCOPE OF SERVICES

Andrea Carlson, a geologist, and Kristen Williams, an environmental chemist, from the Shannon & Wilson's Fairbanks office conducted the site characterization field tasks on October 7-8, 2009. They collected water samples from the on-site drinking-water well along the shore of Yarger Lake and the well at the neighboring campground for chemical analysis. They used a photoionization detector (PID) to field screen the soil stockpile and collected representative soil samples for chemical analysis. They also attempted to locate the burn pit area and dry well. They submitted the collected soil and water samples to SGS Environmental Services, Inc. (SGS) of Fairbanks, an ADEC-approved laboratory. Photographs of our site visit are presented in Appendix B.

We prepared a Site-Control Plan for the on-site water well; the plan is presented in a separate report.

## 4.0 OBSERVATIONS AND FIELD METHODS

The fieldwork portion of this project was conducted in general accordance with 18 AAC 75, the *ADEC Underground Storage Tanks(UST) Procedures Manual*, and *ADEC Guidance for Cleanup of Petroleum Contaminated Sites*.

### 4.1 Floor Drain/Dry Well Layout

We observed the floor-drain system, looking for possible outfall locations that may have been used prior to the installation of the closed system. Figure 3 shows the USACE as-built drawings for the dry well. There was no conclusive evidence the floor drains were not connected to the

new storage-tank system. We looked for evidence of buried telephone lines and other underground utilities that may preclude future excavation in the area south of the pump building; the ADOT&PF site foreman and building maintenance manager could not accurately locate telephone lines that may traverse this area. To safely explore this area, a skilled utility locator will need to visit the site. Once the utilities have been located, an exploration plan for the drywell can be devised and implemented.

## **4.2 Soil-Stockpile Field Screening and Analytical Sampling**

According to site foreman Norman Gallen, the ADOT&PF used the stockpile from the 2007 AST removal as fill in a project along the Alaska Highway. A small, 10-cubic-yard stockpile remained at the site. We field-screened five locations with a PID equipped with a 10.6 eV lamp, as a qualitative indication of the volatile organic compounds (VOCs) in the soil. The PID was calibrated and operated in accordance with the owner's manual. During the soil field-screening activities, we screened newly uncovered soil from the stockpile. The PID readings were less than 1 ppm.

We collected an analytical soil sample and a field duplicate from the center of stockpile at a depth of about 24 inches below the surface. We collected the analytical soil samples in laboratory-provided sample containers and submitted them to SGS for analysis of GRO by Alaska Method AK 101, DRO by Alaska Method AK 102, and benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B.

## **4.3 Water Sampling**

### **4.3.1 Water Well Sampling**

We collected one sample and a duplicate from the water-supply well. Before collecting the samples, we purged 50 gallons from the well into the floor drain in order to flush the piping. We collected the analytical samples in laboratory-provided, pre-preserved sample containers and submitted them to SGS for analysis of GRO by Alaska Method AK101, DRO by Alaska Method AK102, VOCs by EPA Method 8260B, SVOCs by EPA Method 8270D SIMS and UST metals by EPA Method 6000 series.

### **4.3.2 Pore-water Sampling**

We collected four pore-water samples by hand-driving well points near the current shoreline of Yarger Lake. The sample locations are shown on Figure 2. Penetration depth of the pore-water probe was approximately 1 foot to 1.5 feet. The well points included a screened

disposable tip and were fitted with clean, new 3/16-inch inner diameter Teflon tubing. After driving the well points, the drive shafts were pulled from the ground and the well points developed with a peristaltic pump until the pore-water was clear of suspended sediment. We collected one groundwater sample from each well point for analysis of GRO, DRO, and VOCs by the methods mentioned above, and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270.

#### **4.4 Sample Custody, Storage, and Shipping**

After collection, we placed the samples in a cooler with adequate quantities of ice substitute to maintain samples at 2 °C to 6 °C. Prior to delivery to the laboratory, samples were in our custody at all times. We hand-delivered soil and water samples for this assessment directly to SGS in Fairbanks.

#### **4.5 Well Search**

We identified two properties adjacent to the NMS that may have groundwater wells. We inquired at each location to determine if a well is present. An ADOT&PF employee lives in a house north of NMS; that residence does not have a well. The cabin south of the NMS also does not have a well. The USF&WS campground has a well equipped with a hand-pump. We collected a water sample from the well and submitted it to SGS for the analysis of GRO, DRO, and BTEX using the methods previously stated.

#### **4.6 Investigation-Derived Waste Management**

We disposed disposable sampling equipment, including tubing, spoons, and resealable plastic bags, in the Fairbanks North Star Borough landfill.

### **5.0 RESULTS**

#### **5.1 Soil Samples**

Soil sample analytical results are summarized in Table 1. The laboratory reports are attached in Appendix C. DRO were detected in the soil stockpile duplicate samples at 815 milligrams per kilogram (mg/kg) and 967 mg/kg, respectively. GRO and BTEX analytes were not detected at concentrations exceeding their practical quantitation limits (PQLs); however, these analytes may be biased low in one of the samples since the methanol leaked out during shipment and the laboratory performed a second extraction in-house. The other sample arrived at the laboratory

intact, and the produced similar results. In our opinion, the GRO and BTEX results accurately represent the soil samples.

## **5.2 Pore-water Samples**

Groundwater sample analytical results are presented in Table 2. The laboratory reports are attached in Appendix C.

### **5.2.1 Whole Fuels**

GRO were detected in the four pore-water samples at concentrations ranging from 0.117 milligrams per liter (mg/L) to 1.34 mg/L. DRO were detected above the PQL in two of the four pore-water samples; ranging from 0.743 mg/L to 1.74 mg/L.

### **5.2.2 Volatile Organic Compounds**

Of the 14 VOC analytes detected in the water samples, only benzene exceeded its ADEC cleanup level of 5 µg/L. Benzene concentrations ranged from 28.9 µg/L to 568 µg/L.

### **5.2.3 Semi-volatile Organic Compounds (SVOCs)**

Of the four SVOCs detected in the pore-water samples, none were detected above their respective ADEC cleanup levels.

## **5.3 Maintenance Station Well-water**

The on-site NMS water-well sample analytical results are also presented in Table 2. We collected one sample and a field duplicate from this well. The laboratory reports are attached in Appendix C.

### **5.3.1 Whole Fuels**

GRO were detected in the well sample at a concentration of 2.45 mg/L, exceeding the ADEC groundwater cleanup level of 2.2 mg/L; there was insufficient sample volume to analyze the duplicate for GRO. DRO were not detected above the PQL.

### **5.3.2 Volatile Organic Compounds**

Of the 12 VOCs detected in the well-water sample, only benzene was detected above its ADEC cleanup level (5 µg/L). The benzene concentrations were 672 µg/L and 678 µg/L in the duplicate pair.

### **5.3.3 Semi-volatile Organic Compounds**

Of the three SVOCs detected in the well sample, none were detected above their respective ADEC cleanup levels.

### **5.3.4 Metals**

Barium, nickel, and lead were detected in the NMS well sample and its duplicate; these metals did not exceed their ADEC groundwater cleanup levels of 2,000 µg/L, 100 µg/L, and 15 µg/L respectively. Arsenic, cadmium, chromium, and vanadium were not detected above their PQLs.

## **5.4 Campground Well**

Campground well analytical results are also presented in Table 2. The laboratory reports are attached in Appendix C.

### **5.4.1 Whole Fuels**

GRO and DRO were not detected above their PQLs in samples from the campground well.

### **5.4.2 Volatile Organic Compounds**

BTEX compounds were not detected at concentrations above their PQLs.

## **6.0 QUALITY ASSURANCE/QUALITY CONTROL**

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We conducted a QA/QC review of the pore-water, groundwater, and soil sample results. We reviewed the analytical results for laboratory QC samples, and conducted our own QA assessment for this project. We also reviewed the chain-of-custody (COC) records and laboratory-receipt forms to confirm custody was not breached and the samples were received in good condition. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check that the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards, where such standards exist.

Details regarding the results of our QA review are presented below.

## 6.1 Sample Handling

All three temperature blanks placed in coolers containing pore-water, groundwater, and soil samples arrived at the SGS laboratory below the recommended range of 2 °C to 6 °C. The cooler temperatures were within the recommended range. The laboratory did not note the presence of ice in any of the samples. It is our opinion the low temperature blank temperatures did not affect data quality.

Work Order (WO) 1095962 – One sample jar (sample 1472-002) broke in transit from Fairbanks to Anchorage; the methanol leaked out, but the sample was intact. The laboratory performed an in-house extraction. The GRO and BTEX results for this sample may be biased low due to loss of methanol in transit.

Work Order 1095963 – Limited sample volumes were submitted to the lab for samples 1472-100710-001, and 1472-100710-005; several sample jars were broken during transport (samples 1472-100710-004, 1472-100710-005, and 1472-100710-006); a pair of jars for SVOC analysis was lost in shipment for sample 1472-100710-007. The following table summarizes the analytes the laboratory was unable to complete as requested on the COC due to the limited sample volumes.

Sample Number	Analysis Not Completed	Reason
1472-100710-006	GRO	Broken sample jars
1472-100710-007	PAHs	Inadvertently listed on COC. This was not required as part of the work plan; sample jars did not arrive in Anchorage.

There were no other noteworthy sample-handling anomalies.

## 6.2 Analytical Sensitivity

PQLs were below the ADEC groundwater cleanup levels for the analytes determined, where cleanup levels exist.

The soil samples' PQLs were below ADEC migration-to-groundwater cleanup levels.

We shipped a trip blank with the soil and water samples to be analyzed for GRO, BTEX, and PAHs to determine if cross-contamination or contamination from an outside source may have

occurred during shipment or storage. No analytes were detected above the PQL in the trip blanks.

Laboratory method blanks (MBs) were analyzed in association with the samples collected for this project to check for contributions to the analytical results possibly attributable to laboratory-based contamination. No analytes were detected above the PQL in the water MBs. RRO was detected between the method detection limit (MDL) and the PQL in the soil MB; RRO was not a target analyte, and the MB detection did not affect the sample results.

### **6.3 Accuracy**

The laboratory assessed the accuracy of their analytical procedure through a variety of QA procedures. Analysis of laboratory control samples (LCSs) and LCS duplicates (LCSDs) and continuing calibration verification samples (CCVs) allowed the laboratory to assess the accuracy of their procedures by checking their ability to recover analytes added to clean matrices. SGS also analyzed a matrix spike (MS) and MS duplicate (MSD) for VOCs to assess their ability to recover analytes from a matrix similar to that of the project samples. Laboratory accuracy was also evaluated individually for each sample by assessing the recovery of analyte surrogates added to individual project and QC samples.

The LCS/LCSD and MS/MSD recoveries fell within laboratory- or method-established limits for the soil samples (WO 1095962). The LCS/LCSD and CCV recoveries for the water samples (WO 1095963) were biased high for tetrachloroethane, dibromochloromethane, 1,1,1,2-tetrachloroethane, 2-butanone, and bromoform. These analytes were not detected above their PQLs in the associated samples, and were not affected by the laboratory anomalies.

Recoveries of GRO soil surrogate 4-BFB were above laboratory control limits for samples *1472-001* and *1472-002*, reportedly due to hydrocarbon interference. The corresponding GRO results are biased high; data usability is not affected, as GRO were not detected above the PQL.

### **6.4 Precision**

We collected field duplicate samples at a frequency of 10 percent of the total samples to evaluate the precision of analytical measurements, as well as the reproducibility of our sampling technique. To evaluate the precision of the data, we calculated the relative percent difference (RPD; difference between the sample and its field duplicate divided by the mean of the two); RPD can be evaluated only if the results of the analyses for both the sample and its duplicate are above method detection limits.



Field-duplicate RPDs were within the data quality objectives for soil and water samples, where calculable.

Laboratory analytical precision can also be evaluated by RPD calculations. LCS/LCSD RPDs provide information regarding the reproducibility of analytical procedures and therefore, a measure of analytical precision. SGS reported LCS/LCSD and MS/MSD RPDs. Laboratory-sample RPDs fell within laboratory- or method-established limits, and no project or QA samples were affected.

## 6.5 Data Quality Summary

By working in general accordance with our proposed scope of services, the samples we collected are considered to be representative of site conditions at the locations and times they were obtained. Based on our QA review, no samples were rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In general, the quality of the analytical data for this project does not appear to have been compromised by any of the analytical irregularities noted above. GRO and BTEX were biased low in the one soil-sample duplicate pair (1472-002); however, usable data was obtained for the primary sample.

The laboratory reports and our ADEC data-quality-review checklists are included in Appendix C.

## 7.0 DISCUSSION

The site currently occupied by the ADOT&PF NMS has been used for fuel handling and vehicle maintenance since it was developed in 1954. Groundwater contamination was detected at the site in 1988 and has been reconfirmed several times since, most recently in 2009. Since 2006, Shannon & Wilson has conducted several assessments to determine the source of the groundwater contamination and completed a limited corrective action while decommissioning three ASTs at the site. In this section, we present a discussion of the results of our recent site assessment, as well as the results of previous assessments. Finally in this section, we use our current understanding of contaminant distribution to update the CSM.

### 7.1 Soil Contamination

In 2006, we collected soil samples from 12 test pits excavated in areas previously used for fuel storage or waste disposal. The results of the study are presented in our report *Site Investigation, ADOT&PF Northway Maintenance Station, Mile 1256 Alaska Highway, Alaska*, dated

April 2007. Sample results from test pits near the ASTs did not indicate the presence of widespread soil contamination; however, DRO exceeding the ADEC cleanup level were detected near the dispenser island. The test pits we sampled near a residential leach tank did not contain detectable BTEX or other VOCs, though the PQLs for 13 of these analytes were higher than their respective soil-cleanup levels. We were unaware of the dry well at the shop at the time of this assessment.

Shannon & Wilson observed the removal of three ASTs from the site in 2007. The contamination we observed during the demolition was associated with leaking piping. We identified two sources of GRO and benzene contamination: one near the gasoline AST piping 'Y' connecting the older and newer 2-inch lines from the tank to the dispensing pump islands, and another beneath a rupture in the 4-inch gasoline piping feeding the turbines in the composite building/shop. We removed about 400 cubic yards of contaminated weathered granitic bedrock/soil from these areas; additional removal was not practicable due to the increasing hardness of the rock with depth. Concentrations of DRO, GRO, and BTEX constituents remaining in the fractured bedrock exceeded their respective ADEC soil cleanup levels at these locations.

The soil contamination associated with the operation of the former ASTs at the site resulted in soil contamination that appears to have limited lateral extent. Releases from the piping system likely migrated vertically through fracture zones in the bedrock.

## **7.2 Soil Stockpile**

The ADOT&PF used the 400 cubic yards of soil we stockpiled during the AST demolition as fill in a road project. A 10 cubic-yard pile remained at the site; samples we collected during this assessment contained DRO exceeding their migration-to-groundwater soil cleanup level but below the ingestion and inhalation cleanup levels. BTEX analytes were not detected exceeding their PQLs.

## **7.3 Water Well**

The presence of GRO and benzene contamination in the water-supply well indicates water quality has been compromised by site activities. The sources of contamination are likely the piping leaks associated with the former ASTs described in Section 2.3. The water supply well is reportedly 250 feet deep; we have no information regarding well construction or condition of the well. Groundwater at the site is likely restricted to fracture zones within the granitic bedrock.

According to the TCA, former employees at the Lakeview Pump Station were aware fuel-handling activities at the site had resulted in the presence of fuel in the well.

#### **7.4 Pore-water Samples**

The presence of GRO, DRO, benzene, and 1,2-dichloroethane in the pore-water samples collected on the eastern shore of Yarger Lake indicates water-quality in that area has been compromised by site activities. The source of the contamination may be the leaking AST pipes described above, though we note the USF&WS stores fuel at their float-plane dock adjacent to the area where we collected the pore-water samples. 1,2-Dichloroethane (a lead scavenger commonly found in aviation gasoline) was detected in two of the pore-water samples and has not been detected in the water-well samples. Additional sampling will be required determine which potential source is contributing the petroleum hydrocarbons to the pore water of Yarger Lake.

#### **7.5 Data Gaps**

The USACE as-built plans depict a dry well connected to floor drains in the southern end of the composite/shop building (Figure 3). The presence of more recent buried utilities in the area of the dry well precluded invasive sampling during our 2009 site characterization. The ADOT&PF attempted to locate the buried utilities, but they were unsure of their exact location. A qualified utility locator will need to visit the site to clear the area around the dry-well location before a thorough assessment can be performed.

The USACE as-built plans also depict a burn pit to the north of the composite/shop building (Figure 4). According to the TCA, the burn pit was connected to a sump in the valve room. The sump/burn pit was used to dispose of fuel drained from the pumps during maintenance and repairs. The TCA also noted the sump leaked for a year before the leak was discovered and fixed. We attempted to locate the burn pit using the measurements on the as-builts; however, there was no indication of a burn pit at the surface. The burn pit appears to have been filled in or covered; a backhoe will be required to explore this area.

#### **7.6 Conceptual Site Model**

We completed a CSM following our 2006 Site Assessment at the NMS. The CSM described potential sources of chemicals, release mechanisms, means of retention in or migration to exposure media, exposure routes and potential receptors. The following sections provide an updated version of the CSM; Figure 5 is an updated CSM graphic.

Subsurface soil and groundwater were affected by fuel releases at the site. Our 2006 test-pit sampling targeted near-surface and subsurface soil around the shop and former septic leach tanks; there was no indication of contamination in the test pits near the septic leach tanks. Soil contamination and broken piping observed during our 2007 AST removal indicated the likely source of groundwater contamination was the ASTs. During the 2007 AST decommissioning, we removed surface contamination in the area of the former ASTs. We have no data to evaluate the dry well and burn pit as potential sources of near-surface or subsurface soil contamination. Pore-water samples indicate the presence of petroleum hydrocarbons adjacent to Yarger Lake; the source of this contamination has yet to be determined.

Potential contaminant receptors are limited to visitors, on-site workers, and construction workers, as site access is restricted. We removed about 400 cubic yards of contaminated soil from beneath the ASTs and the piping trenches; therefore, the outdoor-air exposure pathways (inhalation of outdoor air and inhalation of fugitive dust) have been eliminated. Groundwater-contaminant exposure was also considered a complete pathway for visitors, on-site workers, and construction workers through inhalation, incidental ingestion, and dermal contact. We understand the use of the NMS well has been discontinued, and water for drinking and other uses is now obtained from a source in Northway.

Indoor-air exposure due to groundwater contamination may represent a potentially complete pathway, since the depth to groundwater at the site is unknown, and volatilization of benzene or other VOCs from the contaminated groundwater into the facility's buildings is possible. Recent information regarding the leaking sump leading to the burn pit indicates there may be contaminated soil beneath the foundation surrounding the sump. It should be noted vehicle maintenance is performed in the building, which may represent a possible additional source of VOC exposure.

Incidental ingestion of groundwater, dermal absorption of contaminants in groundwater, and inhalation of volatile contaminants in groundwater represent potentially complete pathways, even though drinking water is obtained from an off-site source and stored in a tank at the facility. Use of groundwater for washing or other uses at the site poses an exposure risk. We prepared a site-control plan for the NMS well to limit potential exposures.

Incidental ingestion of pore-water, dermal absorption of contaminants in pore-water, and inhalation of volatile contaminants in pore-water represent potentially complete pathways. We have not completed ADEC's EcoScoping form; however, due the proximity of the pore-water

contamination to Yarger Lake and the sensitive nature of the environment (within Tetlin Wildlife Refuge), any future site assessment work should include an evaluation of ecological receptors.

## **8.0 CONCLUSIONS AND RECOMMENDATIONS**

The objectives of this study included sampling various site media, evaluating the presence of off-site receptors, and determining if data gaps exist regarding site contaminant sources.

### **8.1 Conclusions**

We confirmed the presence of groundwater contamination at the ADOT&PF Northway Maintenance Facility. The water well apparently has been contaminated with benzene at similar levels since at least 1988. It is likely historical fuel releases from AST piping led to groundwater contamination exceeding the ADEC benzene and GRO cleanup levels. We have no information regarding well construction or condition.

We discovered pore-water contamination adjacent to Yarger Lake. The source of the GRO, DRO, and benzene contamination is unknown. The presence of 1,2-dichloroethane suggests a source other than the former ASTs.

The soil stockpile at the site contained DRO exceeding the ADEC cleanup levels.

The burn pit and the dry well remain as data gaps in the assessment of potential contaminant sources at the site.

### **8.2 Recommendations**

The water-well at the site should not be used for a drinking-water source. We recommend implementing the site control we developed for the well. If the site-control plan is not implemented, we recommend abandoning the well to avoid potential contaminant exposures.

The source of pore-water contamination is not known; we recommend developing a plan to assess the potential sources of this contamination.

The soil stockpile at the site contained DRO exceeding the ADEC cleanup levels; since the levels do not exceed the ingestion and inhalation cleanup levels, the soil could be placed in a non-environmentally sensitive area.

To assess the burn pit and dry well, we recommend using a backhoe to excavate test pits in these areas. Utility clearance will be required in the area of the dry well.

## 9.0 LIMITATIONS

This report was prepared for the use of the ADEC and its representatives for assessing the nature and extent of contamination at the ADOT&PF Northway Maintenance Station. This report presents our professional judgment as to the conditions in the area. Conclusions and recommendations presented here are based on the sampling and analyses we performed, along with a limited review of records and other data available to the public. They should not be construed as definite conclusions about the soil, groundwater, or pore-water in the area, and it is possible our tests may not represent the highest levels of contamination in the area. We have not performed an independent evaluation of the accuracy or completeness of third-party information, and shall not be responsible for errors or omissions contained in such information.

The information included in this report should be considered representative of the time and locations at which the sampling occurred. It was not the intent of our investigation to detect the presence of soil or groundwater affected by contaminants other than those for which laboratory analyses were performed. No conclusions can be drawn on the presence or absence of other contaminants. The observed levels of contamination may be dependent upon seasonal fluctuations of the groundwater table and/or the passage of time. Due to such changes, or others beyond our control, our observations and recommendations applicable to this site may need to be revised. If substantial time has elapsed between submission of this report and the start of activities or action based upon it, we recommend this report be reviewed to determine the applicability of the conclusions and recommendations considering the lapsed time or changed conditions.

This report was prepared for the exclusive use of ADEC. All documents prepared by Shannon & Wilson are instruments of service with respect to the project for the sole use of our Client. Only our Client shall have the right to rely upon such documents. Such documents are not intended or represented to be suitable for reuse by our Client or others after the passage of time, on extensions of the project, or on any other project. Any such reuse without written verification or adaptation by Shannon & Wilson, as appropriate for the specific purpose intended, shall be at the user's sole risk.

Copies of documents that may be relied upon by our Client are limited to the printed copies (also known as hard copies) signed or sealed by Shannon & Wilson. Text, data, or graphics files in

electronic media format are furnished solely for the convenience of our Client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

Because data stored in electronic media can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the Client should perform acceptance tests or procedures within 60 days after its receipt, after which, unless notice of any errors are given in writing to Shannon & Wilson, the Client shall be deemed to have accepted the data thus transferred. Any errors reported within the 60-day acceptance period shall be corrected by Shannon & Wilson. Shannon & Wilson shall not be responsible for maintaining documents stored in electronic media format after acceptance by the Client.

When transferring documents in electronic media format, Shannon & Wilson does not make any representations as to long-term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used for the document's creation.

Table 1.  
Summary of Analytical Soil Sample Results

Shannon & Wilson, Inc.

SAMPLE NUMBER	GRO	DRO	Benzene	Toluene	Ethyl- benzene	p- & m - Xylenes	o-Xylene
<i>ADEC Cleanup Level</i>	<i>260</i>	<i>230</i>	<i>25</i>	<i>6,500</i>	<i>6,900</i>	<i>63,000</i>	
<i>1472-001</i>	< 2.30	815	< 0.0115	< 0.0461	< 0.0461	< 0.0461	< 0.0461
<i>1472-002<sup>†</sup></i>	< 3.14	967	< 0.0157	< 0.0628	< 0.0628	< 0.0628	< 0.0628

<sup>†</sup> - field duplicate of 1472-001, GRO and BTEX biased low; see QA/QC checklist for explanation.  
GRO and DRO results in mg/kg; BTEX results in µg/kg.



Table 2.  
Summary of Pore-Water and Water Well Sample Results

Fuels (mg/L) and BTEX (µg/L)

SAMPLE NUMBER	Location	GRO	DRO	Benzene	Toluene	Ethylbenzene	p&m -Xylenes	o-Xylene
<i>ADEC Cleanup Level</i>		2.2	1.5	5	1,000	700	10,000	
1472-100709-001	WP-1 (southern)	0.117	< 0.784	28.9	< 1.00	< 1.00	15.0	4.99
1472-100709-002	WP-1 (duplicate)	na	na	na	na	na	na	na
1472-100709-003	WP-2	1.34	1.74	568	1.40	32.0	8.33	1.40
1472-100709-004	WP-3	0.664	< 0.769	196	< 1.00	10.5	16.5	< 1.00
1472-100709-005	WP-4 (northern)	0.315	0.743	94.9	< 1.00	10.5	12.3	< 1.00
1472-100709-006	NMS Well	na	< 0.784	672	58.5	3.36	79.3	81.3
1472-100709-007	NMS well duplicate	2.45	< 0.714	678	57.1	3.38	78.0	71.7
1472-100709-008	campground well	<0.100	< 0.769	< 0.500	< 2.00	< 2.00	< 2.00	< 2.00

Volatile Organic Compounds (µg/L)

SAMPLE NUMBER	Location	Isopropyl-benzene	n-Propyl-benzene	1,3,5-Trimethyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	4-Isopropyl-toluene	n-Butyl-benzene	Naphthalene	1,2-Dichloroethane
<i>ADEC Cleanup Level</i>		3,700	370	1,800	1,800	370	-	370	730	5
1472-100709-001	WP-1	5.32	< 1.00	5.31	8.14	< 1.00	< 1.00	< 1.00	< 2.00	2.07
1472-100709-002	WP-1 (duplicate)	na	na	na	na	na	na	na	na	na
1472-100709-003	WP-2	37.4	19.9	5.02	2.02	6.51	1.21	< 1.00	7.53	1.48
1472-100709-004	WP-3	2.71	4.56	< 1.00	< 1.00	4.98	4.28	2.16	7.45	< 0.500
1472-100709-005	WP-4	5.06	6.23	< 1.00	1.00	3.98	1.26	< 1.00	< 2.00	< 0.500
1472-100709-006	NMS Well	8.31	1.11	4.67	17.7	2.65	< 1.00	1.73	20.9	< 0.500
1472-100709-007	NMS Well (duplicate)	7.95	1.06	4.41	17.4	2.54	< 1.00	1.84	21.5	< 0.500
1472-100709-008	Campground Well	na	na	na	na	na	na	na	na	na

Semivolatile Organic Compounds (µg/L)

SAMPLE NUMBER	Location	1-Methyl-naphthalene	2-Methyl-naphthalene	Naphthalene	Fluorene
<i>ADEC Cleanup Level</i>		150	150	730	1,500
1472-100709-001	WP-1	< 0.0565	< 0.0565	<0.113	< 0.0565
1472-100709-002	WP-1 (duplicate)	< 0.0500	< 0.0500	<0.1	< 0.0500
1472-100709-003	WP-2	1.61	0.974	2.88	< 0.0503
1472-100709-004	WP-3	2.83	0.419	3.27	0.0602
1472-100709-005	WP-4	0.103	< 0.0521	0.362	< 0.0521
1472-100709-006	NMS Well	2.42	3.77	8.26	< 0.0549
1472-100709-007	NMS Well (duplicate)	na	na	na	na
1472-100709-008	Campground Well	na	na	na	na

Metals (µg/L)

SAMPLE NUMBER	Location	Barium	Nickel	Lead
<i>ADEC Cleanup Level</i>		2,000	100	15
1472-100709-006	NMS Well	6.66	3.89	5.01
1472-100709-007	NMS Well (duplicate)	6.89	3.79	5.15

Notes:

"-" - no ADEC cleanup level established

na - not analyzed

Only those analytes that were detected above their practical quantitation limits are shown; complete laboratory report is presented in Appendix B



Pore-water sampling along the shore of Yarger Lake.



Dry well area.



Stockpile sampling.



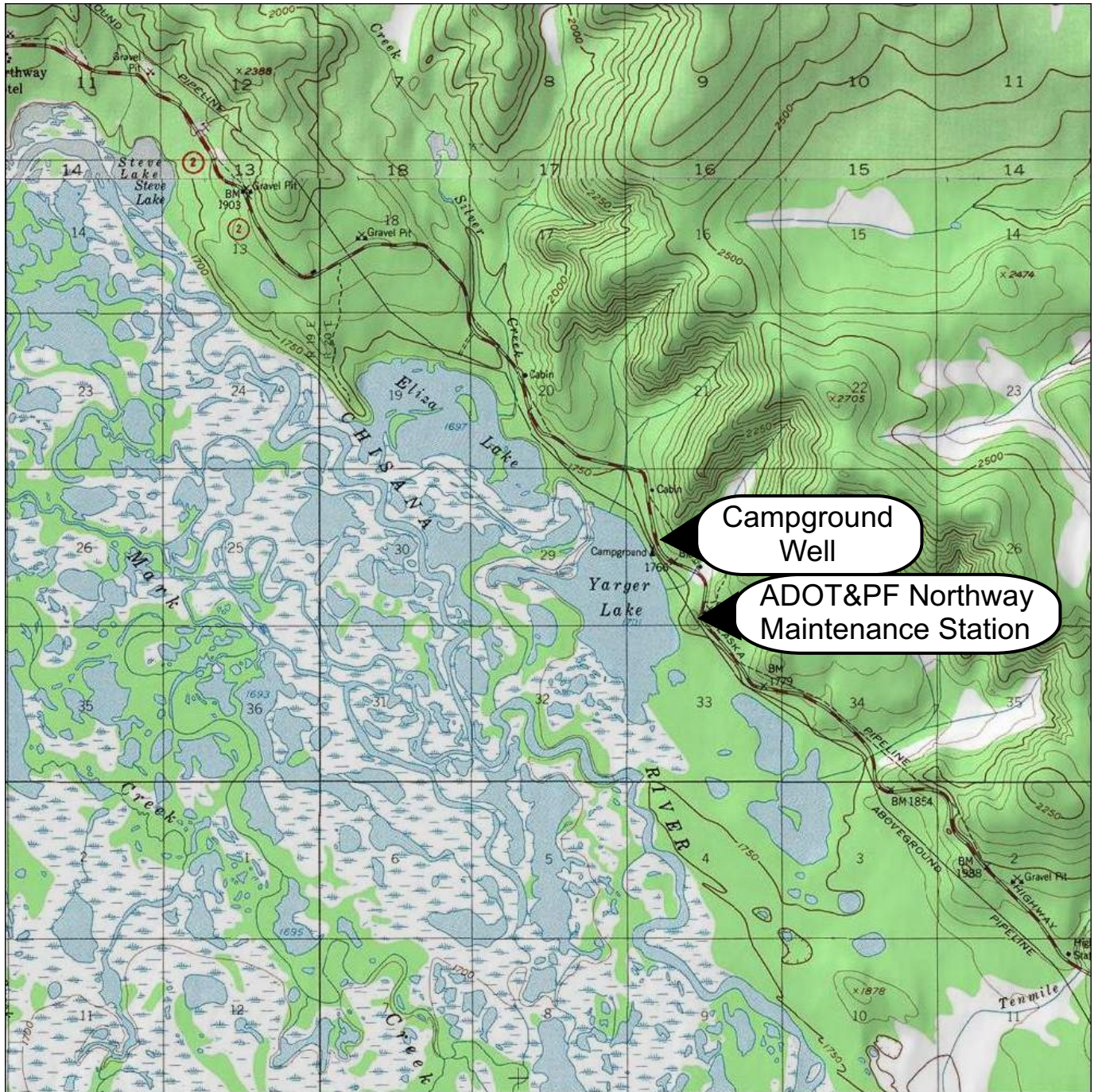
NMS well head; not severed pipe near center of photograph.



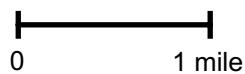
Burn pit area.



Floor-drain-holding tank.



Approximate Scale: 1 inch = 1 mile



Alaska Department of Environmental Conservation  
ADOT&PF Northway Maintenance Station  
Northway, Alaska

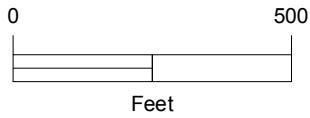
**SITE LOCATION**

June 2010






31-1-11472-001

**SHANNON & WILSON, INC.**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 1**



**LEGEND**

-  Water Supply Well
-  Pore Water Sample Location
-  Former AST
-  Gasoline Leak
-  ADOT&PF Building



Alaska Department of Environmental Conservation  
ADOT&PF Northway Maintenance Station  
Northway, Alaska

**SITE PLAN**

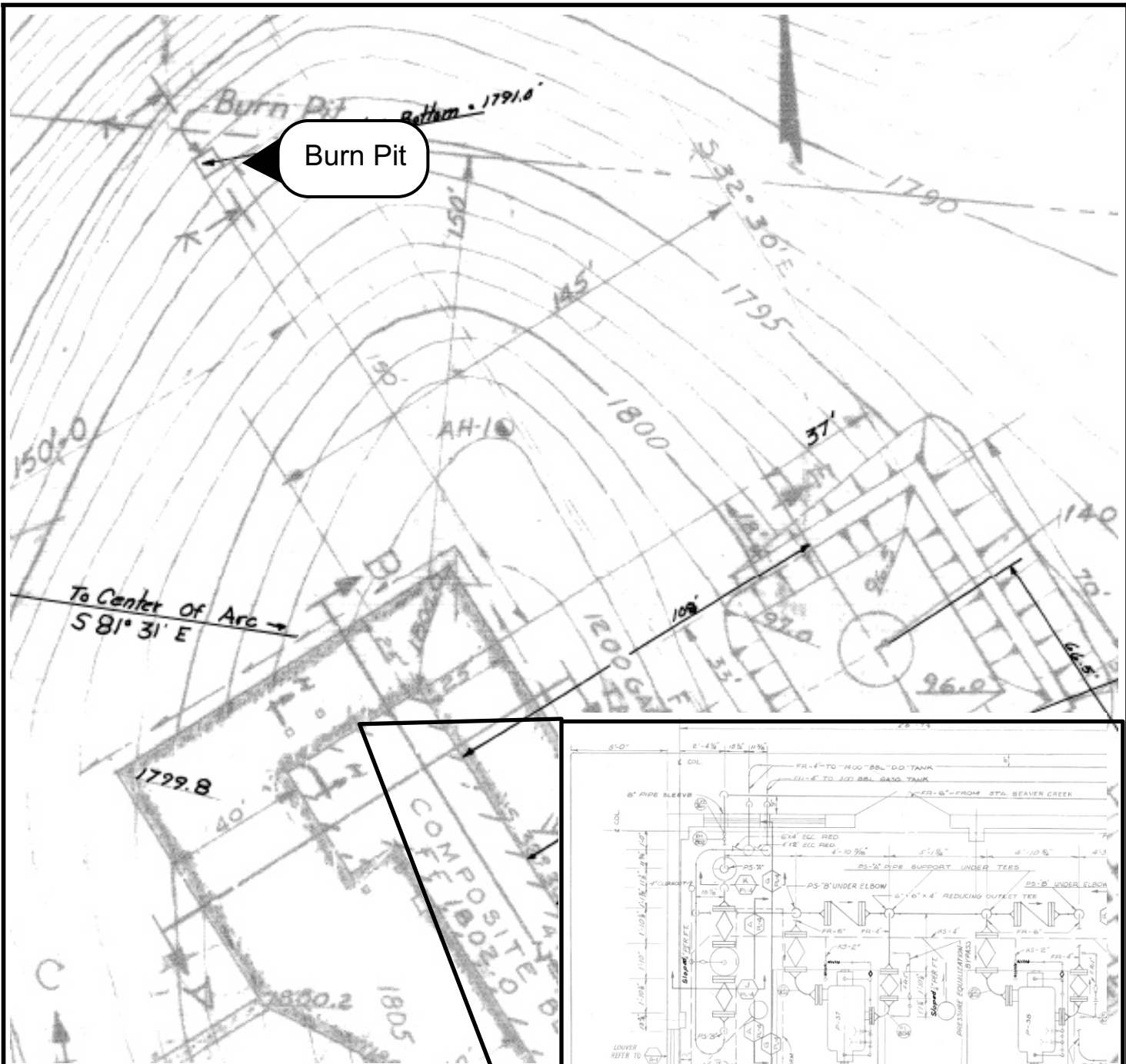
June 2010

31-1-11472-001

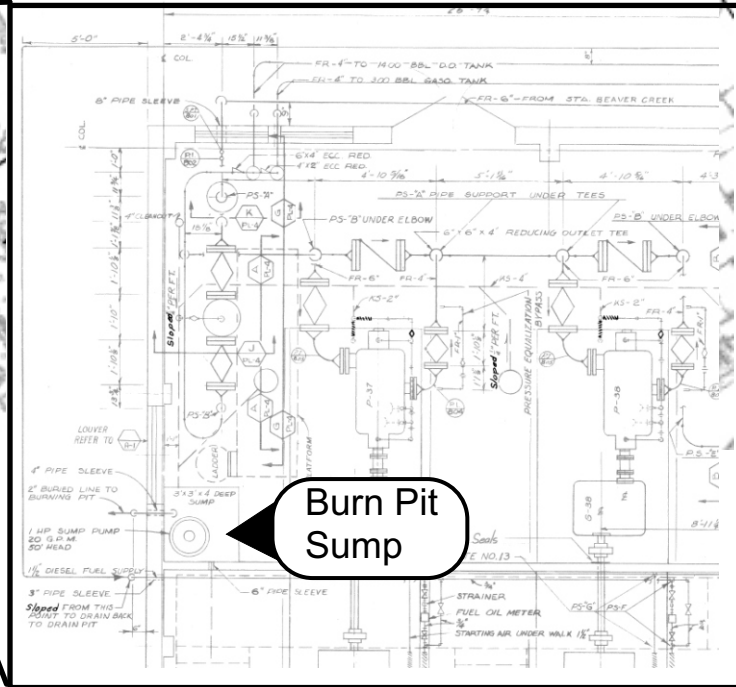
**SHANNON & WILSON, INC.**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 2**





Source: USACE Lakeview Pump Station As-built plans



Not to Scale

Alaska Department of Environmental Conservation  
ADOT&PF Northway Maintenance Station  
Northway, Alaska

**BURN PIT LAYOUT**

June 2010

31-1-11472-001

# DRAFT HUMAN HEALTH CONCEPTUAL SITE MODEL

Site Name: ADOT&PF Northway Maintenance Station  
 Completed By: Shannon & Wilson, Inc.  
 Describe source of contamination:  
 Fuel contamination associated with former ASTs; potential sources yet to be investigated at burn pit, dry well, and float plane dock. Site is within the Tetlin National Wildlife Refuge; completing ADEC EcoScoping process is suggested.

**Directions: Follow the italicized directions below in numbered order. At least one transport mechanism, exposure media, and receptor should be identified for each complete pathway identified in column (4). Do not consider engineering or land use controls when describing exposure pathways.**

(1) Check the media that could be directly impacted by the release.	(2) For each checked medium, follow the top arrow and check the additional transport mechanisms.	(3) Check exposure media identified in column (2).	(4) Check pathways that are complete or need further evaluation. <i>The pathways identified in this column must agree with Sections 2 and 3 of the CSM Scoping Form.</i>	(5) Check receptors that could be affected by each exposure pathway. Do not																
Media	Transport Mechanisms	Exposure Media	Pathway/ Exposure Route	Current & Future Receptors DR																
Surface Soil (0-2 ft bgs) <input type="checkbox"/>	<input checked="" type="checkbox"/> Direct release to surface soil <i>check soil</i> <input type="checkbox"/> Migration or leaching to subsurface <i>check soil</i> <input type="checkbox"/> Migration or leaching to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Runoff or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> soil	<input checked="" type="checkbox"/> Incidental Soil Ingestion <input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil	<table border="1"> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
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Subsurface Soil (2-15 ft bgs) <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Direct release to subsurface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input checked="" type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> air	<input type="checkbox"/> Inhalation of Outdoor Air <input checked="" type="checkbox"/> Inhalation of Indoor Air <input type="checkbox"/> Inhalation of Fugitive Dust	<table border="1"> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												
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Ground-water <input checked="" type="checkbox"/>	<input type="checkbox"/> Direct release to groundwater <i>check groundwater</i> <input checked="" type="checkbox"/> Volatilization <i>check air</i> <input checked="" type="checkbox"/> Flow to sediment <i>check sediment</i> <input checked="" type="checkbox"/> Flow to surface water body <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> groundwater	<input type="checkbox"/> Ingestion of Groundwater (as drinking water) <input checked="" type="checkbox"/> Ingestion of Groundwater (incidental only) <input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Groundwater <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water	<table border="1"> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
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Surface Water <input type="checkbox"/>	<input type="checkbox"/> Direct release to surface water <i>check surface water</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Sedimentation <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water (as drinking water) <input checked="" type="checkbox"/> Ingestion of Surface Water (incidental only) <input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Surface Water <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water	<table border="1"> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
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Sediment <input type="checkbox"/>	<input type="checkbox"/> Direct release to sediment <i>check sediment</i> <input type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> sediment <input type="checkbox"/> biota	<input type="checkbox"/> Direct Contact with Sediment <input type="checkbox"/> Ingestion of Wild Foods	<table border="1"> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																	

Figure 5

**APPENDIX A**

**EXCERPT FROM USE&WS**

***TETLIN NATIONAL WILDLIFE REFUGE CONTAMINANT ASSESSMENT***



Tetlin National Wildlife Refuge  
Contaminant Assessment

July 2007

This report may be cited as:

USFWS. 2007. Tetlin National Wildlife Refuge Contaminant Assessment. U.S. Fish and Wildlife Service, Regional Office, Anchorage AK. 54pp.

### Lakeview Pump Station

In 1961, in response to increasing fuel needs, the Haines to Fairbanks pipeline capacity was upgraded with the addition of six new pumps stations that would be used to boost pressure. The additional pump stations increased the highest pump capacity from 16,500 barrels a day to 27,500. The new stations were only used at full capacity for a few years, until military fuel needs decreased.



*Miscellaneous debris at the Lakeview Pump Station in 2004.*

D. Roelke/USFWS

Among the new stations was the Lakeview Pump Station. In 1965, PLO No. 3689 withdrew 21.48 acres from the public trust (Milepost 1256.4 on the Alaska Highway) for the U.S. Army as part of the Haines to Fairbanks pipeline and the future location of the Lakeview Pump Station. The station was built in 1961 and includes a combination building (engine room, pump room, office, generator room, and maintenance shop) and six trailers for family housing. The station was deactivated with the pipeline in 1973. A brief Environmental Assessment was conducted by the U.S. Army that stated there was no impact to the environment at the Lakeview Pump Station. Later in 1973, the U.S. Army notified BLM that the site was no longer needed and requested revocation. For the next seven years, there was discussion among Federal agencies regarding the legal obligation to conduct a formal Environmental Impact Statement on excess land. This became moot in 1980, when the passage of ANILCA created TNWR and incorporated a portion of the Lakeview Pump Station into the Refuge.

Despite being within Refuge boundaries, there were varying legal opinions as to the ownership of the Lakeview Pump Station and associated land. In 1984, the U.S. Government Services Administration conveyed a 3.2 acre portion of the site outside of TNWR to the Federal Highway Administration, which subsequently conveyed the land to Alaska Department of Transportation (ADOT). In 1986, the FWS issued a 20 year

permit to ADOT for a 5.54 acre portion of the Lakeview Pump Station within the Refuge boundaries. For the following ten years, state and federal agencies disagreed over who was responsible for the Lakeview Pump Station, with no agency eager to assume liability for the potentially contaminated parcel.

In 1992, the Refuge manager conducted a site visit to Lakeview Pump Station where he documented a section of above ground pipeline and a concrete storage vault smelling of diesel fuel. Photos taken depict numerous storage tanks, an old burn pit, a boneyard debris, tar piles, and piping. Surface soil samples were collected later in 1992 near the pump station and analyzed for organochlorines and Total Petroleum Hydrocarbons (TPH). Organochlorines were not detected in any sample (n = 4), but TPH concentrations ranged from 64 to 33,600 ppm (n = 16), with the highest concentration in samples collected near the building that was currently in use by ADOT. The results of this analysis and the potential for contamination of groundwater caused the Service to take the position not to accept transfer of the land from the U.S. Army. However, in 1996, PLO 7182 revoked (in part) PLO 3689 and placed a large portion of the former withdrawal under FWS management. Army realty records show that 2.5 acres of the original 21.48 acre site are still held by the U.S. Army.

During discussions with ADOT employees in 1997, the refuge was informed that the water well at the site had been tested for petroleum contamination beginning in 1987. ADOT-funded analyses of water samples conducted in 1988 detected up to 270 ppb benzene, 430 ppb toluene and 290 ppb xylenes. Later test results in 1996 found 517 ppb benzene, 90.7 ppb toluene, and 105 ppb xylenes. The refuge subsequently interviewed two former DOD workers and the wife of a third worker who lived at the site during its operation. They were aware of the water well contamination. The first known contamination event occurred when an employee overfilled a day tank and fuel migrated to the ground. Shortly after this spill, fuel was noted in the water well. An unsealed concrete floor sump in the main pump room was also identified as a significant source of contamination. This sump collected fuels that drained out of the pumps when they were being worked on. When the sump was full, fuels were pumped to an open burn pit and

burned. This sump operated for over a year before leaks were discovered and fixed. Following these events, the door on a clothes dryer was blown off its hinges. This was attributed to the ignition of fumes retained on clothes that had been washed in the contaminated well water. It is unknown if the open burn pit was lined with an impermeable liner. A similar pit at the Tok facilities was not lined, however at that site they later built a steel liner filled with sand.

Since the mid-1980's the site has been used by ADOT as a maintenance facility, equipment yard and as a staging area for road building materials. Three above ground fuel storage tanks with associated piping and a fuel island remain at the facility. ADOT is currently using one of the ASTs and the dispenser island. Floor drains at the facility are plumbed to an oil/water separator, which discharges to a holding tank. ADOT installed this system in 1992. Prior to that date, the floor drains discharged to the septic system.



S. Breese/USFWS

*Bulk waste oil storage tanks outside Alaska Highway right-of-way in 1992. Several areas of petroleum stained soil are also noticeable.*

Recent ADEC information for this site noted that a test boring near the fuel island detected diesel range organics (DRO) at 2,160. In 2006 testing, the onsite well, which is no longer used as a drinking-water source, contained 740 ppb benzene and 3 ppm GRO (gasoline range organics) but no DRO, suggesting that one of the gasoline tanks or piping to the dispenser island may be the source of the well contamination.

In December, 2006, the Service was notified by the USACE that ADOT's beneficial use of the Lakeview Pump Station precludes listing of the site under the FUDS cleanup program.

**APPENDIX B**  
**SITE PHOTOGRAPHS**



Pore-water sampling along the shore of Yarger Lake.



Dry well area.



Stockpile sampling.



NMS well head; not severed pipe near center of photograph.



Burn pit area.



Floor-drain-holding tank.

**APPENDIX C**

**SGS WORK ORDER 1095962 (SOIL SAMPLES)  
SGS WORK ORDER 1095963 (WATER SAMPLES)  
ADEC DATA QUALITY REVIEW CHECKLISTS**

## LABORATORY DATA REVIEW CHECKLIST

**CS Report Name:** Northway ADOT&PF Station

**Date:** June 2010

**Laboratory Report Date:** October 27, 2009

**Consultant Firm:** Shannon & Wilson, Inc.

**Completed by:** Mark S. Lockwood, C.P.G.

**Title:** Senior Principal Geologist

**Laboratory Name:** SGS North America, Inc.

**SGS Work Order Number:** 1095962 (One cooler - #1)

**ADEC File Number:** 170.38.035

(NOTE: *NA* = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

### 1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses? **Yes** / No

Comments:

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved?

**NA** / Yes / No

Comments:

### 2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

**Yes** / No

Comments:

b. Correct analyses requested? **Yes** / No

Comments:

### 3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt ( $4^{\circ} \pm 2^{\circ}$  C)?

Yes **No**

Comments: *Upon delivery to SGS in Fairbanks the temp blank was 1.0° C and the cooler*



*temperature was 4.1° C. Upon delivery to the lab in Anchorage the temp blank was 1.0° C and the cooler temperature was 2° C. No evidence of freezing was noted.*

- b.** Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? *NA / **Yes** No*

Comments:

- c.** Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes** / No

Comments: *Samples 1472-002 was during transport to Anchorage; the methanol preservative leaked out. The lab performed an in-house extraction.*

- d.** If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? *NA / **Yes** No*

Comments: *Samples 1472-002 was during transport to Anchorage; the methanol preservative leaked out. The lab performed an in-house extraction.*

- e.** Data quality or usability affected? **Yes** Explain. Comments: *Volatile organic compound results were biased low due to loss of field applied methanol.*

#### **4. Case Narrative**

- a.** Present and understandable? **Yes** / No

Comments:

- b.** Discrepancies, errors or QC failures noted by the lab? *None Noted / **Yes***

Comments: *AK103 method blank result was greater than one-half the PQL.*

- c.** Were corrective actions documented? **None Noted / Yes**

Comments:

- d.** What is the effect on data quality/usability, according to the case narrative? **None**

Comments: *RRO was not a target analyte.*

#### **5. Sample Results**

- a.** Correct analyses performed/reported as requested on COC? **Yes** / No

Comments:

- b.** All applicable holding times met? **Yes** / No

Comments:

- c.** All soils reported on a dry-weight basis? *NA / **Yes** No*

Comments:

- d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project? **Yes**/ No

Comments:

- e. Data quality or usability affected? **No** Explain. NA

Comments:

## 6. QC Samples

### a. Method Blank

- i. One method blank reported per matrix, analysis, and 20 samples?

**Yes**/ No

Comments:

- ii. All method blank results less than PQL? Yes **No**

Comments: *AK103 method blank result was greater than one-half the PQL.*

- iii. If above PQL, what samples are affected? **None**

Comments: *RRO was not a target analyte.*

- iv. Do the affected sample(s) have data flags? **NA**/ Yes / No

Comments:

If so, are the data flags clearly defined? **NA**/ Yes / No

Comments:

- v. Data quality or usability affected? **No** Explain. NA

Comments:

### b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?

(LCS/LCSD required per AK methods, LCS required per SW846) N/A / **Yes**/ No

Comments:

*When analyses are non-AK methods and only a LCS was reported, but a MS/MSD was used for RPDs, answer will still be "yes."*

- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? NA / **Yes**/ No

Comments:

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes**/ No

Comments:

- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes/ No**

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected? **NA**

Comments:

- vi. Do the affected samples(s) have data flags? **NA** / Yes / No

Comments:

If so, are the data flags clearly defined? **NA** / Yes / No

Comments:

- vii. Data quality or usability affected? Explain. **NA**

Comments:

**c. Surrogates - Organics Only**

- i. Are surrogate recoveries reported for organic analyses, field, QC and laboratory samples? **NA / Yes / No**

Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **NA / Yes / No**

Comments:

- iii. Do the sample results with failed surrogate recoveries have data flags? **NA** / Yes / No

Comments:

If so, are the data flags clearly defined? **NA** / Yes / No

Comments:

- iv. Data quality or usability affected? Explain. **NA** / Yes

Comments:

**d. Trip Blank - Volatile analyses only (GRO, BTEX, VOCs, etc.)**

- i. One trip blank reported per matrix, analysis and cooler? **NA / Yes / No**

Comments: *No trip in cooler containing metals samples.*

- ii. All results less than PQL? **NA / Yes / No**

Comments:

iii. If above PQL, what samples are affected? **NA**

Comments:

iv. Data quality or usability affected? **No** Explain. NA

Comments:

**e. Field Duplicate**

i. One field duplicate submitted per matrix, analysis and 10 project samples?

**Yes** / No

Comments: *1472-100709-007 is the duplicate of sample 1472-100709-006.*

ii. Were the field duplicates submitted blind to the lab? NA **Yes** / No

Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?  
(Recommended: 30% for water, 50% for soil) NA **Yes** / No

Comments: *The RPDs for detected analytes meet the DQOs; we could not calculate RPDs for the BTEX compounds as they were not detected above their PQLs.*

iv. Data quality or usability affected? **No** Explain.

**f. Decontamination or Equipment Blank (if applicable)**

**NA** / Yes / No

i. All results less than PQL? **NA** / Yes / No

Comments:

ii. If results are above PQL, what samples are affected? **NA**

Comments:

iii. Data quality or usability affected? Explain. **NA**

Comments:

**7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)**

a. Are they defined and appropriate? **NA** / Yes / No



**SGS North America Inc.**  
**Alaska Division**  
**Level II Laboratory Data Report**

Project: 31-1-11472-001 Northway ADOT  
Client: Shannon & Wilson-Fairbanks  
SGS Work Order: 1095962

Released by:

**Contents:**

Cover Page  
Case Narrative  
Final Report Pages  
Quality Control Summary Forms  
Chain of Custody/Sample Receipt Forms

**Note:**  
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



CASE NARRATIVE

Print Date: 10/21/2009

**Client Name: Shannon & Wilson-Fairbanks**  
**Project Name: 31-1-11472-001 Northway ADOT**  
**Workorder No.: 1095962**

Sample Comments

Refer to the sample receipt form for information on sample condition.

<u>Lab Sample ID</u>	<u>Sample Type</u>	<u>Client Sample ID</u>
1095962001	PS	1472-001
	AK102 - Unknown hydrocarbon with several peaks is present.	
1095962002	PS	1472-002
	AK102 - Unknown hydrocarbon with several peaks is present.	
931409	MB	MB for HBN 221517 [XXX/21816]
	AK103 - MB result is greater than one-half the PQL, however less than the PQL.	



## Laboratory Analytical Report

Client: **Shannon & Wilson-Fairbanks**  
2355 Hill Rd  
Fairbanks, AK 99709

Attn: **Andrea Carlson**  
T: (907)479-0600 F:(907)479-5691  
ac@shanwil.com

Project: **31-1-11472-001 Northway ADOT**

Workorder No.: **1095962**

### Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Carmon Beene

Project Manager



Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions ([http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm))

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified  
All DRO/RRO analyses are integrated per SOP.





SAMPLE SUMMARY

Print Date: 10/21/2009 2:53 pm

Client Name: Shannon & Wilson-Fairbanks  
Project Name: 31-1-11472-001 Northway ADOT  
Workorder No.: 1095962

Analytical Methods

<u>Method Description</u>	<u>Analytical Method</u>
AK101/8021 Combo. (S)	AK101
AK101/8021 Combo. (S)	SW8021B
Diesel Range Organics (S)	AK102
GRO/8021 Combo In-House Ext (S)	AK101
GRO/8021 Combo In-House Ext (S)	SW8021B
Percent Solids SM2540G	SM20 2540G

Sample ID Cross Reference

<u>Lab Sample ID</u>	<u>Client Sample ID</u>
1095962001	1472-001
1095962002	1472-002
1095962003	TRIP BLANK



Shannon & Wilson-Fairbanks

Print Date: 10/21/2009 2:53 pm

Client Sample ID: **1472-001**  
SGS Ref. #: 1095962001  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 90.7

Collection Date/Time: 10/07/09 16:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	2.30	mg/Kg	1	VFC9713		
Benzene	ND	0.0115	mg/Kg	1	VFC9713		
Toluene	ND	0.0461	mg/Kg	1	VFC9713		
Ethylbenzene	ND	0.0461	mg/Kg	1	VFC9713		
o-Xylene	ND	0.0461	mg/Kg	1	VFC9713		
P & M -Xylene	ND	0.0461	mg/Kg	1	VFC9713		
4-Bromofluorobenzene <surr>	81.4	50-150	%	1	VFC9713		
1,4-Difluorobenzene <surr>	96.9	80-120	%	1	VFC9713		

**Batch Information**

Analytical Batch: VFC9713  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 02:44  
Dilution Factor: 1

Initial Prep Wt./Vol.: 76.907 g

Container ID:1095962001-A  
Analyst: KPW

Analytical Batch: VFC9713  
Analytical Method: SW8021B  
Analysis Date/Time: 10/17/09 02:44  
Dilution Factor: 1

Initial Prep Wt./Vol.: 76.907 g

Container ID:1095962001-A  
Analyst: KPW



Client Sample ID: **1472-001**  
SGS Ref. #: 1095962001  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 90.7

Collection Date/Time: 10/07/09 16:45  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	815	77.0	mg/Kg	1	XFC8965	XXX21816	
5a Androstane <sur>	104	50-150	%	1	XFC8965	XXX21816	

**Batch Information**

Analytical Batch: XFC8965  
Analytical Method: AK102  
Analysis Date/Time: 10/14/09 03:41  
Dilution Factor: 1

Prep Batch: XXX21816  
Prep Method: SW3550C  
Prep Date/Time: 10/13/09 12:10

Initial Prep Wt./Vol.: 30.0749 g  
Prep Extract Vol.: 3.5 mL  
Container ID:1095962001-B  
Analyst: KDC



Shannon & Wilson-Fairbanks

Print Date: 10/21/2009 2:53 pm

Client Sample ID: **1472-001**  
SGS Ref. #: 1095962001  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 90.7

Collection Date/Time: 10/07/09 16:45  
Receipt Date/Time: 10/10/09 11:00

**Solids**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	90.7		%	1	SPT8032		

**Batch Information**

Analytical Batch: SPT8032  
Analytical Method: SM20 2540G  
Analysis Date/Time: 10/12/09 15:55  
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL  
Container ID:1095962001-B  
Analyst: KAN



Shannon & Wilson-Fairbanks

Print Date: 10/21/2009 2:53 pm

Client Sample ID: **1472-002**  
SGS Ref. #: 1095962002  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 91.5

Collection Date/Time: 10/07/09 17:00  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	3.14	mg/Kg	1	VFC9713		
Benzene	ND	0.0157	mg/Kg	1	VFC9713		
Toluene	ND	0.0628	mg/Kg	1	VFC9713		
Ethylbenzene	ND	0.0628	mg/Kg	1	VFC9713		
o-Xylene	ND	0.0628	mg/Kg	1	VFC9713		
P & M -Xylene	ND	0.0628	mg/Kg	1	VFC9713		
4-Bromofluorobenzene <surr>	91.7	50-150	%	1	VFC9713		
1,4-Difluorobenzene <surr>	96.7	80-120	%	1	VFC9713		

**Batch Information**

Analytical Batch: VFC9713  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 03:04  
Dilution Factor: 1

Initial Prep Wt./Vol.: 51.015 g  
Container ID:1095962002-A  
Analyst: KPW

Analytical Batch: VFC9713  
Analytical Method: SW8021B  
Analysis Date/Time: 10/17/09 03:04  
Dilution Factor: 1

Initial Prep Wt./Vol.: 51.015 g  
Container ID:1095962002-A  
Analyst: KPW



Client Sample ID: **1472-002**  
SGS Ref. #: 1095962002  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 91.5

Collection Date/Time: 10/07/09 17:00  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	967	67.4	mg/Kg	1	XFC8965	XXX21816	
5a Androstane <sur>	105	50-150	%	1	XFC8965	XXX21816	

**Batch Information**

Analytical Batch: XFC8965  
Analytical Method: AK102  
Analysis Date/Time: 10/14/09 04:02  
Dilution Factor: 1

Prep Batch: XXX21816  
Prep Method: SW3550C  
Prep Date/Time: 10/13/09 12:10

Initial Prep Wt./Vol.: 30.1588 g  
Prep Extract Vol.: 3.1 mL  
Container ID:1095962002-A  
Analyst: KDC



Shannon & Wilson-Fairbanks

Print Date: 10/21/2009 2:53 pm

Client Sample ID: **1472-002**  
SGS Ref. #: 1095962002  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)  
Percent Solids: 91.5

Collection Date/Time: 10/07/09 17:00  
Receipt Date/Time: 10/10/09 11:00

**Solids**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Total Solids	91.5		%	1	SPT8032		

**Batch Information**

Analytical Batch: SPT8032  
Analytical Method: SM20 2540G  
Analysis Date/Time: 10/12/09 15:55  
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL  
Container ID:1095962002-A  
Analyst: KAN



Client Sample ID: **TRIP BLANK**  
SGS Ref. #: 1095962003  
Project ID: 31-1-11472-001 Northway ADOT  
Matrix: Soil/Solid (dry weight)

Collection Date/Time: 10/07/09 16:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	2.60	mg/Kg	1	VFC9713		
Benzene	ND	0.0130	mg/Kg	1	VFC9713		
Toluene	ND	0.0519	mg/Kg	1	VFC9713		
Ethylbenzene	ND	0.0519	mg/Kg	1	VFC9713		
o-Xylene	ND	0.0519	mg/Kg	1	VFC9713		
P & M -Xylene	ND	0.0519	mg/Kg	1	VFC9713		
4-Bromofluorobenzene <surr>	81.4	50-150	%	1	VFC9713		
1,4-Difluorobenzene <surr>	97	80-120	%	1	VFC9713		

**Batch Information**

Analytical Batch: VFC9713  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 01:25  
Dilution Factor: 1

Initial Prep Wt./Vol.: 48.157 g  
Container ID:1095962003-A  
Analyst: KPW

Analytical Batch: VFC9713  
Analytical Method: SW8021B  
Analysis Date/Time: 10/17/09 01:25  
Dilution Factor: 1

Initial Prep Wt./Vol.: 48.157 g  
Container ID:1095962003-A  
Analyst: KPW





SGS Ref.# 931390 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway ADOT  
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/21/2009 14:53  
Prep Batch  
Method  
Date

QC results affect the following production samples:  
1095962001, 1095962002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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**Solids**

Total Solids	100			%	10/12/09
Batch	SPT8032				
Method	SM20 2540G				
Instrument					



SGS Ref.# 931409 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway ADOT  
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/21/2009 14:53  
Prep Batch XXX21816  
Method SW3550C  
Date 10/13/2009

QC results affect the following production samples:  
1095962001, 1095962002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Semivolatile Organic Fuels Department</u></b>					
Diesel Range Organics	ND	20.0	6.20	mg/Kg	10/14/09
<b>Surrogates</b>					
5a Androstane <surr>	88.4	60-120		%	10/14/09
Batch	XFC8965				
Method	AK102				
Instrument	HP 6890 Series II FID SV D R				



**SGS Ref.#** 932574 Method Blank  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway ADOT  
**Matrix** Soil/Solid (dry weight)

**Printed Date/Time** 10/21/2009 14:53  
**Prep Batch** VXX20134  
**Method** SW5035A  
**Date** 10/16/2009

QC results affect the following production samples:  
 1095962001, 1095962002, 1095962003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Volatile Fuels Department</u></b>					
Gasoline Range Organics	ND	2.50	0.750	mg/Kg	10/16/09
<b>Surrogates</b>					
4-Bromofluorobenzene <surr>	113	50-150		%	10/16/09
<b>Batch</b>	VFC9713				
<b>Method</b>	AK101				
<b>Instrument</b>	HP 5890 Series II PID+FID VCA				
Benzene	ND	0.0125	0.00400	mg/Kg	10/16/09
Toluene	ND	0.0500	0.0150	mg/Kg	10/16/09
Ethylbenzene	ND	0.0500	0.0150	mg/Kg	10/16/09
o-Xylene	ND	0.0500	0.0150	mg/Kg	10/16/09
P & M -Xylene	ND	0.0500	0.0150	mg/Kg	10/16/09
<b>Surrogates</b>					
1,4-Difluorobenzene <surr>	97.2	80-120		%	10/16/09
<b>Batch</b>	VFC9713				
<b>Method</b>	SW8021B				
<b>Instrument</b>	HP 5890 Series II PID+FID VCA				



SGS Ref.# 931391 Duplicate  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway ADOT  
Original 1095488061  
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/21/2009 14:53  
Prep Batch  
Method  
Date

QC results affect the following production samples:  
1095962001, 1095962002

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
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**Solids**

Total Solids	61.6	60.4	%	2	(< 15)	10/12/2009
Batch	SPT8032					
Method	SM20 2540G					
Instrument						



SGS Ref.# 931410 Lab Control Sample  
931411 Lab Control Sample Duplicate  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway ADOT  
Matrix Soil/Solid (dry weight)

Printed Date/Time 10/21/2009 14:53  
Prep Batch XXX21816  
Method SW3550C  
Date 10/13/2009

QC results affect the following production samples:  
1095962001, 1095962002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b>Semivolatile Organic Fuels Department</b>							
Diesel Range Organics	LCS	151	90	( 75-125 )		167 mg/Kg	10/14/2009
	LCSD	150	90		0	(< 20 )	167 mg/Kg 10/14/2009
<b>Surrogates</b>							
5a Androstane <surr>	LCS		90	( 60-120 )			10/14/2009
	LCSD		90		0		10/14/2009

Batch XFC8965  
Method AK102  
Instrument HP 6890 Series II FID SV D R



**SGS Ref.#** 932575 Lab Control Sample  
 932576 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway ADOT  
**Matrix** Soil/Solid (dry weight)

**Printed Date/Time** 10/21/2009 14:53  
**Prep Batch** VXX20134  
**Method** SW5035A  
**Date** 10/16/2009

QC results affect the following production samples:  
 1095962001, 1095962002, 1095962003

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Fuels Department</u></b>							
Benzene	LCS	1.24	99	( 80-125 )		1.25 mg/Kg	10/16/2009
	LCSD	1.29	103		4 (< 20)	1.25 mg/Kg	10/17/2009
Toluene	LCS	1.29	103	( 85-120 )		1.25 mg/Kg	10/16/2009
	LCSD	1.34	107		4 (< 20)	1.25 mg/Kg	10/17/2009
Ethylbenzene	LCS	1.34	107	( 85-125 )		1.25 mg/Kg	10/16/2009
	LCSD	1.39	111		4 (< 20)	1.25 mg/Kg	10/17/2009
o-Xylene	LCS	1.26	101	( 85-125 )		1.25 mg/Kg	10/16/2009
	LCSD	1.31	105		4 (< 20)	1.25 mg/Kg	10/17/2009
P & M -Xylene	LCS	2.61	104	( 85-125 )		2.50 mg/Kg	10/16/2009
	LCSD	2.71	108		4 (< 20)	2.50 mg/Kg	10/17/2009
<b>Surrogates</b>							
1,4-Difluorobenzene <surr>	LCS		101	( 80-120 )			10/16/2009
	LCSD		102		0		10/17/2009

**Batch** VFC9713  
**Method** SW8021B  
**Instrument** HP 5890 Series II PID+FID VCA



**SGS Ref.#** 932577 Lab Control Sample  
 932578 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway ADOT  
**Matrix** Soil/Solid (dry weight)

**Printed Date/Time** 10/21/2009 14:53  
**Prep Batch** VXX20134  
**Method** SW5035A  
**Date** 10/16/2009

QC results affect the following production samples:  
 1095962001, 1095962002, 1095962003

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Fuels Department</u></b>							
Gasoline Range Organics	LCS	13.0	116	( 60-120 )		11.3 mg/Kg	10/17/2009
	LCSD	13.2	117		1 (< 20 )	11.3 mg/Kg	10/17/2009
<b>Surrogates</b>							
4-Bromofluorobenzene <surr>	LCS		118	( 50-150 )			10/17/2009
	LCSD		116		2		10/17/2009

**Batch** VFC9713  
**Method** AK101  
**Instrument** HP 5890 Series II PID+FID VCA



1095962

Services Inc. Y RECORD

- Locations Nationwide
- Alaska
  - Maryland
  - New Jersey
  - New York
  - North Carolina
  - Ohio
  - West Virginia

www.us.sgs.com

Page 1 of 4

1 CLIENT: Shannon & Wilson  
 CONTACT: Andre Carlson / Mark Lockwood 479-0600  
 PROJECT: Northway ADOT&F  
 REPORTS TO: Andre Carlson / Mark Lockwood  
 INVOICE TO: S&W  
 QUOTE #: 31-11472-001

SGS Reference #: \_\_\_\_\_ page \_\_\_\_\_ of \_\_\_\_\_

#	CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	Analysis Required	REMARKS/LOC ID
①	AB	1472-001	X	X	DRO GRO (B)EX
②	A	1472-002	X	X	
③	A	trip Blank	X	X	

4 DOD Project? YES NO

Special Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Samples Received Cold? YES NO

Temperature °C: 41.0

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

5 Collected/Relinquished By: (1) Received By: 10:55  
 Relinquished By: (2) Received By: 10:55  
 Relinquished By: (3) Received By: 1500  
 Relinquished By: (4) Received For Laboratory By:



## Long, Alesha (Anchorage)

---

**From:** Beene, Carmon R (Anchorage)  
**Sent:** Tuesday, October 13, 2009 1:57 PM  
**To:** Long, Alesha (Anchorage)  
**Subject:** WO 1095962  
**Importance:** High

Per Mark Lockwood at S&W please do an in house extraction for the gro/btex analysis on sample 2 that was broken in transit from Fairbanks to anchorage.

Please Let me know if I need to notify anyone else.  
Thanks

**Carmon Beene**  
**Environmental Services**  
**Project Manager**

**SGS - North America**  
**3180 Peger Rd Ste. 190**  
**Fairbanks AK 99701**  
Phone: (907) 474-8656  
Mobile: (907) 322-8444  
Fax: (907) 474-9685  
Email: [Carmon.Beene@sgs.com](mailto:Carmon.Beene@sgs.com)

**Did you know SGS now offers TO-14, TO-15 ambient air volatiles analysis including NELAC accreditation?**

SGS sends analytical reports via the Internet as Portable Document Format (PDF) files. Reports in this format, with authenticated electronic signatures, are considered official reports. You may distribute your PDF files electronically or as printed hardcopies, as long as they are distributed in their entirety. All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)



SAMPLE RECEIPT FORM

SGS WO#

Yes No NA

- Are samples **RUSH**, priority or *w/in 72 hrs of hold time*?
- If yes, have you done *e-mail ALERT* notification?
- Are samples *within 24 hrs. of hold time or due date*?
- If yes, have you also *spoken with supervisor*?
- Archiving bottles: Are lids marked w/ red "X"?
- Were samples collected with proper preservative?
- Any problems (ID, cond'n, HT, etc)? Explain:**  
*NOT CHECKED IN THE FAIRBANKS OFFICE*

TAT (circle one): Standard -or- Rush

Received Date: 10/29/09

Received Time: 1055

Cooler ID	Temperature	Measured w/ (Therm/IR ID#)
<u>1 C=41 TB=1°C</u>	<u>FRX711</u>	
	°C	
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

- Client /  Alert Courier /  Lynden /  SGS
- UPS /  FedEx /  USPS /  DHL /  Carlisle
- AkAir Goldstreak /  NAC /  ERA /  PenAir
- Other: \_\_\_\_\_

Additional Sample Remarks: (*✓ if applicable*)

- Extra Sample Volume?
- Limited Sample Volume?
- Multi-Incremental Samples?
- Lab-filtered for dissolved \_\_\_\_\_
- Ref Lab required for \_\_\_\_\_
- Foreign Soil?

**This section must be filled out for DoD projects (USACE, Navy, AFCEE):**

- | Yes                      | No                       |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Is received temperature $\leq 6^{\circ}\text{C}$ ?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i><br>If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected. |
| <input type="checkbox"/> | <input type="checkbox"/> | Was there an airbill? ( <i>If "yes," see attached.</i> )   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was cooler sealed with custody seals & were they intact?<br># / where: _____   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was there a COC with cooler?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was COC sealed in plastic bag & taped inside lid of cooler?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Was the COC filled out properly? Did labels correspond?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Did the COC indicate USACE / Navy / AFCEE project?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Samples were packed to prevent breakage with ( <i>circle one</i> ):<br>Bubble Wrap Vermiculite Other (specify): _____  |
| <input type="checkbox"/> | <input type="checkbox"/> | Were all samples sealed in separate plastic bags?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Were all VOCs free of headspace and/or MeOH preserved?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Were correct container / sample sizes submitted?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?  |

**This section must be completed if problems are noted.**

Was client notified of problems? Yes / No

By (SGS PM): \_\_\_\_\_

Individual contacted: \_\_\_\_\_

Via: Phone / Fax / E-mail (*circle one*)

Date/Time: \_\_\_\_\_

Reason for contact: \_\_\_\_\_

Change Order Required? Yes / No

Notes:

Completed by (sign): Carmon Beene (print): CARMON BEENE

Login proof: Self-check completed MC Peer-reviewer's Initials AG





**SAMPLE RECEIPT FORM FOR TRANSFERS**  
From  
**FAIRBANKS, ALASKA**  
To  
**ANCHORAGE, AK**

**TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS.**

**NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.**

Notes: SAMPLE ID # 1472-001 402 LG WISHTA RECEIVER  
BROKEN IN COOLER FOR SAMPLE LOST, IN HOUSE  
EXTRACTION POSSIBLE FOR

Receipt Date / Time: 10-10-09 1100

Delivery method to Anchorage (circle all that apply):

Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlile / Lynden / SGS

Other: \_\_\_\_\_

Airbill # \_\_\_\_\_

**COOLER AND TEMP BLANK READINGS\* 6**

Cooler ID	Temp Blank (°C)	Cooler (°C)	Cooler ID	Temp Blank (°C)	Cooler (°C)
<u>1</u>	<u>1.0</u>	<u>2</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

CUSTODY SEALS INTACT: YES / NO  
# / WHERE: 2 FRONT & BACK TOP LID

COMPLETED BY: [Signature]

\*Temperature readings include thermometer correction factors.

## LABORATORY DATA REVIEW CHECKLIST

**CS Report Name:** Northway ADOT&PF Station

**Date:** June 2010

**Laboratory Report Date:** October 27, 2009

**Consultant Firm:** Shannon & Wilson, Inc.

**Completed by:** Mark S. Lockwood, C.P.G.

**Title:** Senior Principal Geologist

**Laboratory Name:** SGS North America, Inc.

**SGS Work Order Number:** 1095963 (Two coolers - #1 and #2)

**ADEC File Number:** 170.38.035

(NOTE: *NA* = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

### **1. Laboratory**

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses? **Yes** / No

Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved?

**NA** / Yes / No

Comments:

### **2. Chain of Custody (COC)**

a. COC information completed, signed, and dated (including released/received by)?

**Yes** / No

Comments:

b. Correct analyses requested? **Yes** / No

Comments:

### **3. Laboratory Sample Receipt Documentation**

a. Sample/cooler temperature documented and within range at receipt ( $4^{\circ} \pm 2^{\circ}$  C)?

Yes **No**

Comments: *Upon delivery to SGS in Fairbanks the temp blank was 1.0° C for cooler #1*

*and 2.1° C for cooler #2; cooler temp was 4.1° C for cooler #1 and 4.5° C for cooler #2; no evidence of freezing was noted. Upon delivery to the lab in Anchorage the temp blank was 1.2° C for cooler #1 and 1.0° C for cooler #2; cooler temp was 2° C for both coolers. No evidence of freezing was noted.*

- b. Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? *NA* **Yes** / *No*

Comments:

- c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes** / *No*

Comments: *Samples 1472-100709-001, and 1472-100709-005 and 1472-100709-006 had limited sample volumes due to breakage during transport.*

- d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? *NA* / **Yes** / *No*

Comments: *Samples 1472-100709-001, and 1472-100709-005 and 1472-100709-006 had limited sample volumes due to breakage during transport.*

- e. Data quality or usability affected? **No** Explain. *NA*

Comments: **Although the sample volume was limited, the laboratory was able to perform the analyses requested.**

#### **4. Case Narrative**

- a. Present and understandable? **Yes** / *No*

Comments:

- b. Discrepancies, errors or QC failures noted by the lab? *None Noted* / **Yes**

Comments: *LCS, LCSD, and CCV recoveries were biased high for several 8260B analytes. The analytes were not detected above the PQL in the associated samples.*

- c. Were corrective actions documented? **None Noted** / **Yes**

Comments:

- d. What is the effect on data quality/usability, according to the case narrative?

Comments: *No effect noted.*

#### **5. Sample Results**

- a. Correct analyses performed/reported as requested on COC? **Yes** / *No*

Comments:

- b. All applicable holding times met? **Yes** / *No*

Comments:

- c. All soils reported on a dry-weight basis? **NA** / Yes / No  
Comments:
- d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project? **Yes** / No  
Comments:
- e. Data quality or usability affected? Explain. **No**  
Comments:

## 6. QC Samples

### a. Method Blank

- i. One method blank reported per matrix, analysis, and 20 samples?  
**Yes** / No  
Comments:
- ii. All method blank results less than PQL? **Yes** / No  
Comments:
- iii. If above PQL, what samples are affected? **NA**  
Comments:
- iv. Do the affected sample(s) have data flags? **NA** / Yes / No  
Comments:  

If so, are the data flags clearly defined? **NA** / Yes / No  
Comments:
- v. Data quality or usability affected? Explain. **NA**  
Comments:

### b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?  
(LCS/LCSD required per AK methods, LCS required per SW846) *N/A* / **Yes** / No  
Comments:

*When analyses are non-AK methods and only a LCS was reported, but a MS/MSD was used for RPDs, answer will still be "yes."*

- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? *NA* / Yes / **No**  
Comments: No LCSD was reported for metal analysis.

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) Yes **No**

Comments: *LCS, LCSD, and CCV recoveries were biased high for tetrachloroethane, dibromochloromethane, 1,1,1,2-tetrachloroethane, 2-butanone, and bromoform. These analytes were not detected above their PQLs in the associated samples.*

- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes** / No

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected? **NA**

Comments:

- vi. Do the affected samples(s) have data flags? **NA** / Yes / No

Comments:

If so, are the data flags clearly defined? **NA** / Yes / No

Comments:

- vii. Data quality or usability affected? Explain. **NA**

Comments:

**c. Surrogates - Organics Only**

- i. Are surrogate recoveries reported for organic analyses, field, QC and laboratory samples? *NA* / **Yes** / No

Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) *NA* / Yes **No**

Comments: *AK101 - Bromofluorobenzene was biased high in sample 1472-100709-003.*

- iii. Do the sample results with failed surrogate recoveries have data flags? *NA* / Yes / **No**

Comments:

If so, are the data flags clearly defined? **NA** / Yes / No

Comments:

- iv. Data quality or usability affected? Explain. *NA* / **Yes**

Comments: *GRO is biased high in sample 1472-100709-003.*



**d. Trip Blank** - Volatile analyses only (GRO, BTEX, VOCs, etc.)

- i. One trip blank reported per matrix, analysis and cooler? NA / Yes / **No**

Comments: *No trip in cooler containing metals samples.*

- ii. All results less than PQL? NA / **Yes** / No

Comments:

- iii. If above PQL, what samples are affected? NA

Comments:

- iv. Data quality or usability affected? **No** Explain. NA

Comments:

**e. Field Duplicate**

- i. One field duplicate submitted per matrix, analysis and 10 project samples?

**Yes** / No

Comments: *1472-100709-007 is the duplicate of sample 1472-100709-006.*

- ii. Were the field duplicates submitted blind to the lab? NA / **Yes** / No

Comments:

- iii. Precision – All relative percent differences (RPDs) less than specified DQOs?  
(Recommended: 30% for water, 50% for soil) NA / Yes / **No**

Comments: *The RPDs for detected analytes meet the DQOs with the exception of naphthalene.*

- iv. Data quality or usability affected? **No** Explain. *The higher concentration of Naphthalene was below its cleanup level.*

**f. Decontamination or Equipment Blank** (if applicable)

**NA** / Yes / No

- i. All results less than PQL? **NA** / Yes / No

Comments:

- ii. If results are above PQL, what samples are affected? **NA**

Comments:

- iii. Data quality or usability affected? Explain. **NA**

Comments:

**7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)**

- a. Are they defined and appropriate? **NA** / Yes / No



**SGS North America Inc.**  
**Alaska Division**  
**Level II Laboratory Data Report**

Project: 31-1-11472-001 Northway Adot  
Client: Shannon & Wilson-Fairbanks  
SGS Work Order: 1095963

Released by:

**Contents:**

Cover Page  
Case Narrative  
Final Report Pages  
Quality Control Summary Forms  
Chain of Custody/Sample Receipt Forms

**Note:**  
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



CASE NARRATIVE

Print Date: 10/27/2009

**Client Name: Shannon & Wilson-Fairbanks**  
**Project Name: 31-1-11472-001 Northway Adot**  
**Workorder No.: 1095963**

Sample Comments

Refer to the sample receipt form for information on sample condition.

<u>Lab Sample ID</u>	<u>Sample Type</u>	<u>Client Sample ID</u>
1095963003	PS	1472-100709-003
	AK102 - The pattern is consistent with a weathered middle distillate. AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to hydrocarbon interference.	
1095963005	PS	1472-100709-005
	AK102 - Unknown hydrocarbon with several peaks is present.	
931413	LCS	LCS for HBN 221518 [VXX/20101]
	8260B - LCS recoveries for several analytes do not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples	
931414	LCSD	LCSD for HBN 221518 [VXX/20101]
	8260B - LCSD recoveries for several analytes do not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples	
931415	CCV	CCV for HBN 221519 [VMS/10917]
	8260B - CCV recoveries for several analytes do not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples	
931877	CCV	CCV for HBN 221627 [VMS/10926]
	8260B - CCV recoveries for several analytes do not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples	



## Laboratory Analytical Report

Client: **Shannon & Wilson-Fairbanks**  
2355 Hill Rd  
Fairbanks, AK 99709

Attn: **Andrea Carlson**  
T: (907)479-0600 F:(907)479-5691  
ac@shanwil.com

Project: **31-1-11472-001 Northway Adot**

Workorder No.: **1095963**

### Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Carmon Beene

Project Manager



Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The Laboratory certification numbers are AK971-05 (DW), UTS-005 (CS) and AK00971 (Micro) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A, 7471A, 9040B, 9045C, 9056, 9060, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343. All work is being provided under SGS general terms and conditions ([http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm))

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike (Duplicate)
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 10/27/2009 11:24 am

Client Name: Shannon & Wilson-Fairbanks  
Project Name: 31-1-11472-001 Northway Adot  
Workorder No.: 1095963

Analytical Methods

<u>Method Description</u>	<u>Analytical Method</u>
8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.	8270D SIMS
BTEX 8021	SW8021B
DRO Low Volume (W)	AK102
Gasoline Range Organics (W)	AK101
Metals by ICP-MS	SW6020
Volatile Organic Compounds (W) FULL	SW8260B

Sample ID Cross Reference

<u>Lab Sample ID</u>	<u>Client Sample ID</u>
1095963001	1472-100709-001
1095963002	1472-100709-002
1095963003	1472-100709-003
1095963004	1472-100709-004
1095963005	1472-100709-005
1095963006	1472-100709-006
1095963007	1472-100709-007
1095963008	1472-100709-008
1095963009	TRIP BLANK



Client Sample ID: **1472-100709-001**  
SGS Ref. #: 1095963001  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	0.117	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <sur>	124	50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714	Prep Batch: VXX20141	Initial Prep Wt./Vol.: 5 mL
Analytical Method: AK101	Prep Method: SW5030B	Prep Extract Vol.: 5 mL
Analysis Date/Time: 10/17/09 17:29	Prep Date/Time: 10/17/09 13:04	Container ID:1095963001-B
Dilution Factor: 1		Analyst: KPW



Client Sample ID: **1472-100709-001**

SGS Ref. #: 1095963001

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45

Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	0.784	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	74.2	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960

Analytical Method: AK102

Analysis Date/Time: 10/16/09 11:45

Dilution Factor: 1

Prep Batch: XXX21827

Prep Method: SW3520C

Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 255 mL

Prep Extract Vol.: 1 mL

Container ID:1095963001-G

Analyst: KDC



Client Sample ID: **1472-100709-001**

SGS Ref. #: 1095963001

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	28.9	0.400	ug/L	1	VMS10921	VXX20105	
Toluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	2.07	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	5.31	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	

Client Sample ID: **1472-100709-001**

SGS Ref. #: 1095963001

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	15.0	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	ND	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	4.99	1.00	ug/L	1	VMS10921	VXX20105	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	20.0	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	8.14	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	5.32	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surrr>	95.3	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surrr>	102	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surrr>	92.8	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-001**  
SGS Ref. #: 1095963001  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 05:48		Prep Date/Time: 10/12/09 08:42				Container ID:1095963001-A	
Dilution Factor: 1						Analyst: SCL	



Client Sample ID: **1472-100709-001**  
SGS Ref. #: 1095963001  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Fluorene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Naphthalene	ND	0.113	ug/L	1	XMS5156	XXX21800	
1-Methylnaphthalene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
2-Methylnaphthalene	ND	0.0565	ug/L	1	XMS5156	XXX21800	
Terphenyl-d14 <surr>	91.1	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 03:12  
Dilution Factor: 1

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 885 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963001-I  
Analyst: JDH



Client Sample ID: **1472-100709-002**  
SGS Ref. #: 1095963002  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 12:00  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Fluorene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Naphthalene	ND	0.100	ug/L	1	XMS5156	XXX21800	
1-Methylnaphthalene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
2-Methylnaphthalene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Terphenyl-d14 <surr>	86.9	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 03:47  
Dilution Factor: 1

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 1000 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963002-A  
Analyst: JDH



Client Sample ID: **1472-100709-003**  
SGS Ref. #: 1095963003  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	1.34	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <surr>	240	* 50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 17:52  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963003-C  
Analyst: KPW



Client Sample ID: **1472-100709-003**  
SGS Ref. #: 1095963003  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	1.74	0.769	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	70.6	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960  
Analytical Method: AK102  
Analysis Date/Time: 10/16/09 12:07  
Dilution Factor: 1

Prep Batch: XXX21827  
Prep Method: SW3520C  
Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 260 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963003-G  
Analyst: KDC

Client Sample ID: **1472-100709-003**

SGS Ref. #: 1095963003

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	568	4.00	ug/L	10	VMS10926	VXX20113	
Toluene	1.40	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	32.0	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	1.48	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	5.02	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	1.21	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	19.9	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-003**

SGS Ref. #: 1095963003

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	6.51	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	8.33	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	7.53	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	1.40	1.00	ug/L	1	VMS10921	VXX20105	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	9.73	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	2.02	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	37.4	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surr>	95.7	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surr>	103	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surr>	93.1	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-003**

SGS Ref. #: 1095963003

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 06:22		Prep Date/Time: 10/12/09 08:42				Container ID:1095963003-A	
Dilution Factor: 1						Analyst: SCL	
Analytical Batch: VMS10926		Prep Batch: VXX20113				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/14/09 03:41		Prep Date/Time: 10/13/09 09:32				Container ID:1095963003-B	
Dilution Factor: 10						Analyst: SCL	



Client Sample ID: **1472-100709-003**  
SGS Ref. #: 1095963003  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:00  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Fluorene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0503	ug/L	1	XMS5156	XXX21800	
Naphthalene	2.88	1.01	ug/L	10	XMS5156	XXX21800	
1-Methylnaphthalene	1.61	0.0503	ug/L	1	XMS5156	XXX21800	
2-Methylnaphthalene	0.974	0.0503	ug/L	1	XMS5156	XXX21800	
Terphenyl-d14 <surr>	93.3	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 04:22  
Dilution Factor: 1

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 995 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963003-I  
Analyst: JDH

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 10:11  
Dilution Factor: 10

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 995 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963003-I  
Analyst: JDH



Client Sample ID: **1472-100709-004**  
SGS Ref. #: 1095963004  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	0.664	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <sur>	122	50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 18:15  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963004-C  
Analyst: KPW



Client Sample ID: **1472-100709-004**  
SGS Ref. #: 1095963004  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	0.769	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	81.1	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960	Prep Batch: XXX21827	Initial Prep Wt./Vol.: 260 mL
Analytical Method: AK102	Prep Method: SW3520C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/16/09 12:18	Prep Date/Time: 10/15/09 10:20	Container ID:1095963004-F
Dilution Factor: 1		Analyst: KDC

Client Sample ID: **1472-100709-004**

SGS Ref. #: 1095963004

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	196	4.00	ug/L	10	VMS10926	VXX20113	
Toluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	10.5	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	2.16	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	4.28	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	4.56	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	

Client Sample ID: **1472-100709-004**

SGS Ref. #: 1095963004

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	4.98	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	16.5	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	7.45	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	16.5	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	2.71	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surrr>	95.4	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surrr>	102	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surrr>	93.3	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-004**  
SGS Ref. #: 1095963004  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 06:55		Prep Date/Time: 10/12/09 08:42				Container ID:1095963004-A	
Dilution Factor: 1						Analyst: SCL	
Analytical Batch: VMS10926		Prep Batch: VXX20113				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/14/09 05:21		Prep Date/Time: 10/13/09 09:32				Container ID:1095963004-B	
Dilution Factor: 10						Analyst: SCL	





Client Sample ID: **1472-100709-004**  
SGS Ref. #: 1095963004  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Fluorene	0.0602	0.0500	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0500	ug/L	1	XMS5156	XXX21800	
Naphthalene	3.27	1.00	ug/L	10	XMS5156	XXX21800	
1-Methylnaphthalene	2.83	0.500	ug/L	10	XMS5156	XXX21800	
2-Methylnaphthalene	0.419	0.0500	ug/L	1	XMS5156	XXX21800	
Terphenyl-d14 <surr>	95.6	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156	Prep Batch: XXX21800	Initial Prep Wt./Vol.: 1000 mL
Analytical Method: 8270D SIMS	Prep Method: SW3520C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/23/09 04:57	Prep Date/Time: 10/12/09 08:55	Container ID:1095963004-H
Dilution Factor: 1		Analyst: JDH
<hr/>		
Analytical Batch: XMS5156	Prep Batch: XXX21800	Initial Prep Wt./Vol.: 1000 mL
Analytical Method: 8270D SIMS	Prep Method: SW3520C	Prep Extract Vol.: 1 mL
Analysis Date/Time: 10/23/09 10:46	Prep Date/Time: 10/12/09 08:55	Container ID:1095963004-H
Dilution Factor: 10		Analyst: JDH



Client Sample ID: **1472-100709-005**  
SGS Ref. #: 1095963005  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	0.315	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <sur>	126	50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 18:39  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963005-C  
Analyst: KPW



Client Sample ID: **1472-100709-005**

SGS Ref. #: 1095963005

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15

Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	0.743	0.714	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	70.2	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960

Analytical Method: AK102

Analysis Date/Time: 10/16/09 12:28

Dilution Factor: 1

Prep Batch: XXX21827

Prep Method: SW3520C

Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 280 mL

Prep Extract Vol.: 1 mL

Container ID:1095963005-D

Analyst: KDC



Client Sample ID: **1472-100709-005**  
SGS Ref. #: 1095963005  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	94.9	2.00	ug/L	5	VMS10926	VXX20113	
Toluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	10.5	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	1.26	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	6.23	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	

Client Sample ID: **1472-100709-005**

SGS Ref. #: 1095963005

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	3.98	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	12.3	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	ND	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	12.3	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	1.00	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	5.06	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surr>	95.3	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surr>	102	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surr>	94.3	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-005**  
SGS Ref. #: 1095963005  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 07:29		Prep Date/Time: 10/12/09 08:42				Container ID:1095963005-A	
Dilution Factor: 1						Analyst: SCL	
Analytical Batch: VMS10926		Prep Batch: VXX20113				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/14/09 03:07		Prep Date/Time: 10/13/09 09:32				Container ID:1095963005-B	
Dilution Factor: 5						Analyst: SCL	



Client Sample ID: **1472-100709-005**  
SGS Ref. #: 1095963005  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 14:15  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Fluorene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Naphthalene	0.362	0.104	ug/L	1	XMS5156	XXX21800	
1-Methylnaphthalene	0.103	0.0521	ug/L	1	XMS5156	XXX21800	
2-Methylnaphthalene	ND	0.0521	ug/L	1	XMS5156	XXX21800	
Terphenyl-d14 <sur>	91.3	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 05:31  
Dilution Factor: 1

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 960 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963005-F  
Analyst: JDH



Client Sample ID: **1472-100709-006**  
SGS Ref. #: 1095963006  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15  
Receipt Date/Time: 10/10/09 11:00

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Arsenic	ND	5.00	ug/L	5	MMS6155	MXX22423	
Barium	6.66	3.00	ug/L	5	MMS6155	MXX22423	
Cadmium	ND	2.00	ug/L	5	MMS6155	MXX22423	
Chromium	ND	4.00	ug/L	5	MMS6155	MXX22423	
Lead	5.01	1.00	ug/L	5	MMS6155	MXX22423	
Nickel	3.89	2.00	ug/L	5	MMS6155	MXX22423	
Vanadium	ND	20.0	ug/L	5	MMS6155	MXX22423	

**Batch Information**

Analytical Batch: MMS6155  
Analytical Method: SW6020  
Analysis Date/Time: 10/22/09 20:36  
Dilution Factor: 5

Prep Batch: MXX22423  
Prep Method: SW3010A  
Prep Date/Time: 10/21/09 16:15

Initial Prep Wt./Vol.: 50 mL  
Prep Extract Vol.: 50 mL  
Container ID:1095963006-D  
Analyst: NRB





Client Sample ID: **1472-100709-006**

SGS Ref. #: 1095963006

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15

Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	0.784	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	79.7	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960

Analytical Method: AK102

Analysis Date/Time: 10/16/09 12:39

Dilution Factor: 1

Prep Batch: XXX21827

Prep Method: SW3520C

Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 255 mL

Prep Extract Vol.: 1 mL

Container ID:1095963006-E

Analyst: KDC

Client Sample ID: **1472-100709-006**

SGS Ref. #: 1095963006

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	672	40.0	ug/L	100	VMS10936	VXX20135	
Toluene	58.5	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	3.36	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	1.73	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	4.67	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	1.11	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	

Client Sample ID: **1472-100709-006**

SGS Ref. #: 1095963006

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	2.65	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	79.3	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	20.9	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	81.3	10.0	ug/L	10	VMS10926	VXX20113	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	162	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	17.7	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	8.31	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surr>	92.5	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surr>	101	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surr>	91.4	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-006**

SGS Ref. #: 1095963006

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 08:03		Prep Date/Time: 10/12/09 08:42				Container ID:1095963006-A	
Dilution Factor: 1						Analyst: SCL	
Analytical Batch: VMS10926		Prep Batch: VXX20113				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/14/09 02:33		Prep Date/Time: 10/13/09 09:32				Container ID:1095963006-B	
Dilution Factor: 10						Analyst: SCL	
Analytical Batch: VMS10936		Prep Batch: VXX20135				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/16/09 23:16		Prep Date/Time: 10/16/09 08:45				Container ID:1095963006-C	
Dilution Factor: 100						Analyst: SCL	



Client Sample ID: **1472-100709-006**  
SGS Ref. #: 1095963006  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 11:15  
Receipt Date/Time: 10/10/09 11:00

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Acenaphthylene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Acenaphthene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Fluorene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Phenanthrene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Anthracene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Fluoranthene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Pyrene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Benzo(a)Anthracene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Chrysene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Benzo[b]Fluoranthene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Benzo[k]fluoranthene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Benzo[a]pyrene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Indeno[1,2,3-c,d] pyrene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Dibenzo[a,h]anthracene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Benzo[g,h,i]perylene	ND	0.0549	ug/L	1	XMS5156	XXX21800	
Naphthalene	8.26	1.10	ug/L	10	XMS5160	XXX21800	
1-Methylnaphthalene	2.42	0.0549	ug/L	1	XMS5156	XXX21800	
2-Methylnaphthalene	3.77	0.549	ug/L	10	XMS5160	XXX21800	
Terphenyl-d14 <surr>	90.1	50-135	%	1	XMS5156	XXX21800	

**Batch Information**

Analytical Batch: XMS5156  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 06:06  
Dilution Factor: 1

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 910 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963006-G  
Analyst: JDH

Analytical Batch: XMS5160  
Analytical Method: 8270D SIMS  
Analysis Date/Time: 10/23/09 23:25  
Dilution Factor: 10

Prep Batch: XXX21800  
Prep Method: SW3520C  
Prep Date/Time: 10/12/09 08:55

Initial Prep Wt./Vol.: 910 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963006-G  
Analyst: JDH



Client Sample ID: **1472-100709-007**  
SGS Ref. #: 1095963007  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45  
Receipt Date/Time: 10/10/09 11:00

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Arsenic	ND	5.00	ug/L	5	MMS6155	MXX22423	
Barium	6.89	3.00	ug/L	5	MMS6155	MXX22423	
Cadmium	ND	2.00	ug/L	5	MMS6155	MXX22423	
Chromium	ND	4.00	ug/L	5	MMS6155	MXX22423	
Lead	5.15	1.00	ug/L	5	MMS6155	MXX22423	
Nickel	3.79	2.00	ug/L	5	MMS6155	MXX22423	
Vanadium	ND	20.0	ug/L	5	MMS6155	MXX22423	

**Batch Information**

Analytical Batch: MMS6155  
Analytical Method: SW6020  
Analysis Date/Time: 10/22/09 20:38  
Dilution Factor: 5

Prep Batch: MXX22423  
Prep Method: SW3010A  
Prep Date/Time: 10/21/09 16:15

Initial Prep Wt./Vol.: 50 mL  
Prep Extract Vol.: 50 mL  
Container ID:1095963007-G  
Analyst: NRB



Client Sample ID: **1472-100709-007**  
SGS Ref. #: 1095963007  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	2.45	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <surr>	139	50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 19:08  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963007-B  
Analyst: KPW



Client Sample ID: **1472-100709-007**  
SGS Ref. #: 1095963007  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	0.714	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	75.6	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960  
Analytical Method: AK102  
Analysis Date/Time: 10/16/09 12:50  
Dilution Factor: 1

Prep Batch: XXX21827  
Prep Method: SW3520C  
Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 280 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963007-H  
Analyst: KDC



Client Sample ID: **1472-100709-007**

SGS Ref. #: 1095963007

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	678	4.00	ug/L	10	VMS10926	VXX20113	
Toluene	57.1	1.00	ug/L	1	VMS10921	VXX20105	
Ethylbenzene	3.38	1.00	ug/L	1	VMS10921	VXX20105	
n-Butylbenzene	1.84	1.00	ug/L	1	VMS10921	VXX20105	
Carbon disulfide	ND	2.00	ug/L	1	VMS10921	VXX20105	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3,5-Trimethylbenzene	4.41	1.00	ug/L	1	VMS10921	VXX20105	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chlorobenzene	ND	0.500	ug/L	1	VMS10921	VXX20105	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
4-Isopropyltoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10921	VXX20105	
n-Propylbenzene	1.06	1.00	ug/L	1	VMS10921	VXX20105	
Styrene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromomethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10921	VXX20105	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10921	VXX20105	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10921	VXX20105	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
Chloroform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Chloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Bromomethane	ND	3.00	ug/L	1	VMS10921	VXX20105	
Bromochloromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Vinyl chloride	ND	1.00	ug/L	1	VMS10921	VXX20105	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	

Client Sample ID: **1472-100709-007**

SGS Ref. #: 1095963007

Project ID: 31-1-11472-001 Northway Adot

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45

Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
sec-Butylbenzene	2.54	1.00	ug/L	1	VMS10921	VXX20105	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10921	VXX20105	
Methylene chloride	ND	5.00	ug/L	1	VMS10921	VXX20105	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
P & M -Xylene	78.0	2.00	ug/L	1	VMS10921	VXX20105	
Naphthalene	21.5	2.00	ug/L	1	VMS10921	VXX20105	
o-Xylene	71.7	10.0	ug/L	10	VMS10926	VXX20113	
Bromoform	ND	1.00	ug/L	1	VMS10921	VXX20105	
Xylenes (total)	159	2.00	ug/L	1	VMS10921	VXX20105	
1,2,4-Trimethylbenzene	17.4	1.00	ug/L	1	VMS10921	VXX20105	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Trichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10921	VXX20105	
Isopropylbenzene (Cumene)	7.95	1.00	ug/L	1	VMS10921	VXX20105	
2-Hexanone	ND	10.0	ug/L	1	VMS10921	VXX20105	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10921	VXX20105	
1,2-Dichloroethane-D4 <surrr>	93.2	73-120	%	1	VMS10921	VXX20105	
Toluene-d8 <surrr>	103	80-120	%	1	VMS10921	VXX20105	
4-Bromofluorobenzene <surrr>	92.6	76-120	%	1	VMS10921	VXX20105	



Client Sample ID: **1472-100709-007**  
SGS Ref. #: 1095963007  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 10:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10921		Prep Batch: VXX20105				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/13/09 08:36		Prep Date/Time: 10/12/09 08:42				Container ID:1095963007-A	
Dilution Factor: 1						Analyst: SCL	
Analytical Batch: VMS10926		Prep Batch: VXX20113				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/14/09 02:00		Prep Date/Time: 10/13/09 09:32				Container ID:1095963007-C	
Dilution Factor: 10						Analyst: SCL	



Client Sample ID: **1472-100709-008**  
SGS Ref. #: 1095963008  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 13:10  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Benzene	ND	0.500	ug/L	1	VFC9714	VXX20141	
Toluene	ND	2.00	ug/L	1	VFC9714	VXX20141	
Ethylbenzene	ND	2.00	ug/L	1	VFC9714	VXX20141	
o-Xylene	ND	2.00	ug/L	1	VFC9714	VXX20141	
P & M -Xylene	ND	2.00	ug/L	1	VFC9714	VXX20141	
1,4-Difluorobenzene <surr>	106	80-120	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: SW8021B  
Analysis Date/Time: 10/17/09 19:31  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963008-A  
Analyst: KPW



Client Sample ID: **1472-100709-008**  
SGS Ref. #: 1095963008  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/08/09 13:10  
Receipt Date/Time: 10/10/09 11:00

**Semivolatile Organic Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	ND	0.769	mg/L	1	XFC8960	XXX21827	
5a Androstane <sur>	76.7	50-150	%	1	XFC8960	XXX21827	

**Batch Information**

Analytical Batch: XFC8960  
Analytical Method: AK102  
Analysis Date/Time: 10/16/09 13:00  
Dilution Factor: 1

Prep Batch: XXX21827  
Prep Method: SW3520C  
Prep Date/Time: 10/15/09 10:20

Initial Prep Wt./Vol.: 260 mL  
Prep Extract Vol.: 1 mL  
Container ID:1095963008-D  
Analyst: KDC



Client Sample ID: **TRIP BLANK**  
SGS Ref. #: 1095963009  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Fuels Department**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	ND	0.100	mg/L	1	VFC9714	VXX20141	
4-Bromofluorobenzene <surr>	110	50-150	%	1	VFC9714	VXX20141	

**Batch Information**

Analytical Batch: VFC9714  
Analytical Method: AK101  
Analysis Date/Time: 10/17/09 17:06  
Dilution Factor: 1

Prep Batch: VXX20141  
Prep Method: SW5030B  
Prep Date/Time: 10/17/09 13:04

Initial Prep Wt./Vol.: 5 mL  
Prep Extract Vol.: 5 mL  
Container ID:1095963009-B  
Analyst: KPW



Client Sample ID: **TRIP BLANK**  
SGS Ref. #: 1095963009  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	ND	0.400	ug/L	1	VMS10917	VXX20101	
Toluene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Ethylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
n-Butylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Carbon disulfide	ND	2.00	ug/L	1	VMS10917	VXX20101	
1,4-Dichlorobenzene	ND	0.500	ug/L	1	VMS10917	VXX20101	
1,2-Dichloroethane	ND	0.500	ug/L	1	VMS10917	VXX20101	
1,3,5-Trimethylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
4-Chlorotoluene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Chlorobenzene	ND	0.500	ug/L	1	VMS10917	VXX20101	
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	1	VMS10917	VXX20101	
cis-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10917	VXX20101	
4-Isopropyltoluene	ND	1.00	ug/L	1	VMS10917	VXX20101	
cis-1,3-Dichloropropene	ND	0.500	ug/L	1	VMS10917	VXX20101	
n-Propylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Styrene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Dibromomethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
trans-1,3-Dichloropropene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,2,4-Trichlorobenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10917	VXX20101	
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	1	VMS10917	VXX20101	
Methyl-t-butyl ether	ND	5.00	ug/L	1	VMS10917	VXX20101	
Tetrachloroethene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Dibromochloromethane	ND	0.500	ug/L	1	VMS10917	VXX20101	
1,3-Dichloropropane	ND	0.400	ug/L	1	VMS10917	VXX20101	
1,2-Dibromoethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
Carbon tetrachloride	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	1	VMS10917	VXX20101	
Chloroform	ND	1.00	ug/L	1	VMS10917	VXX20101	
Bromobenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,2,3-Trichloropropane	ND	1.00	ug/L	1	VMS10917	VXX20101	
Chloromethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
Bromomethane	ND	3.00	ug/L	1	VMS10917	VXX20101	
Bromochloromethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
Vinyl chloride	ND	1.00	ug/L	1	VMS10917	VXX20101	
Dichlorodifluoromethane	ND	1.00	ug/L	1	VMS10917	VXX20101	



Client Sample ID: **TRIP BLANK**  
SGS Ref. #: 1095963009  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
sec-Butylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Bromodichloromethane	ND	0.500	ug/L	1	VMS10917	VXX20101	
1,1-Dichloroethene	ND	1.00	ug/L	1	VMS10917	VXX20101	
2-Butanone (MEK)	ND	10.0	ug/L	1	VMS10917	VXX20101	
Methylene chloride	ND	5.00	ug/L	1	VMS10917	VXX20101	
Trichlorofluoromethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
P & M -Xylene	ND	2.00	ug/L	1	VMS10917	VXX20101	
Naphthalene	ND	2.00	ug/L	1	VMS10917	VXX20101	
o-Xylene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Bromoform	ND	1.00	ug/L	1	VMS10917	VXX20101	
Xylenes (total)	ND	2.00	ug/L	1	VMS10917	VXX20101	
1,2,4-Trimethylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
tert-Butylbenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1,1-Trichloroethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1-Dichloroethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
2-Chlorotoluene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Trichloroethene	ND	1.00	ug/L	1	VMS10917	VXX20101	
trans-1,2-Dichloroethene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,2-Dichlorobenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
2,2-Dichloropropane	ND	1.00	ug/L	1	VMS10917	VXX20101	
Hexachlorobutadiene	ND	1.00	ug/L	1	VMS10917	VXX20101	
Isopropylbenzene (Cumene)	ND	1.00	ug/L	1	VMS10917	VXX20101	
2-Hexanone	ND	10.0	ug/L	1	VMS10917	VXX20101	
1,2-Dichloropropane	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1-Dichloropropene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,1,2-Trichloroethane	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,3-Dichlorobenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,2,3-Trichlorobenzene	ND	1.00	ug/L	1	VMS10917	VXX20101	
1,2-Dichloroethane-D4 <surr>	95.9	73-120	%	1	VMS10917	VXX20101	
Toluene-d8 <surr>	101	80-120	%	1	VMS10917	VXX20101	
4-Bromofluorobenzene <surr>	95.3	76-120	%	1	VMS10917	VXX20101	





Client Sample ID: **TRIP BLANK**  
SGS Ref. #: 1095963009  
Project ID: 31-1-11472-001 Northway Adot  
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 10/07/09 11:45  
Receipt Date/Time: 10/10/09 11:00

**Volatile Gas Chromatography/Mass Spectroscopy**

<u>Parameter</u>	<u>Result</u>	<u>PQL/CL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
<b>Batch Information</b>							
Analytical Batch: VMS10917		Prep Batch: VXX20101				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 10/12/09 17:28		Prep Date/Time: 10/12/09 08:27				Container ID:1095963009-A	
Dilution Factor: 1						Analyst: SCL	



**SGS Ref.#** 930990 Method Blank  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** XXX21800  
**Method** SW3520C  
**Date** 10/12/2009

QC results affect the following production samples:

1095963001, 1095963002, 1095963003, 1095963004, 1095963005, 1095963006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Polynuclear Aromatics GC/MS</u></b>					
Acenaphthylene	ND	0.0500	0.0150	ug/L	10/23/09
Acenaphthene	ND	0.0500	0.0150	ug/L	10/23/09
Fluorene	ND	0.0500	0.0150	ug/L	10/23/09
Phenanthrene	ND	0.0500	0.0150	ug/L	10/23/09
Anthracene	ND	0.0500	0.0150	ug/L	10/23/09
Fluoranthene	ND	0.0500	0.0150	ug/L	10/23/09
Pyrene	ND	0.0500	0.0150	ug/L	10/23/09
Benzo(a)Anthracene	ND	0.0500	0.0150	ug/L	10/23/09
Chrysene	ND	0.0500	0.0150	ug/L	10/23/09
Benzo[b]Fluoranthene	ND	0.0500	0.0150	ug/L	10/23/09
Benzo[k]fluoranthene	ND	0.0500	0.0150	ug/L	10/23/09
Benzo[a]pyrene	ND	0.0500	0.0150	ug/L	10/23/09
Indeno[1,2,3-c,d] pyrene	ND	0.0500	0.0150	ug/L	10/23/09
Dibenzo[a,h]anthracene	ND	0.0500	0.0150	ug/L	10/23/09
Benzo[g,h,i]perylene	ND	0.0500	0.0150	ug/L	10/23/09
Naphthalene	ND	0.100	0.0310	ug/L	10/23/09
1-Methylnaphthalene	ND	0.0500	0.0150	ug/L	10/23/09
2-Methylnaphthalene	ND	0.0500	0.0150	ug/L	10/23/09
<b>Surrogates</b>					
Terphenyl-d14 <surr>	98.6	50-135		%	10/23/09
<b>Batch</b>	XMS5156				
<b>Method</b>	8270D SIMS				
<b>Instrument</b>	HP 6890 Series II MS2 SVOA				



SGS Ref.# 931412 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20101  
Method SW5030B  
Date 10/12/2009

QC results affect the following production samples:  
1095963009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 931412 Method Blank  
 Client Name Shannon & Wilson-Fairbanks  
 Project Name/# 31-1-11472-001 Northway Adot  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
 Prep Batch VXX20101  
 Method SW5030B  
 Date 10/12/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>					
Benzene	ND	0.400	0.120	ug/L	10/12/09
Toluene	ND	1.00	0.310	ug/L	10/12/09
Ethylbenzene	ND	1.00	0.310	ug/L	10/12/09
n-Butylbenzene	ND	1.00	0.310	ug/L	10/12/09
Carbon disulfide	ND	2.00	0.620	ug/L	10/12/09
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	10/12/09
1,2-Dichloroethane	ND	0.500	0.150	ug/L	10/12/09
1,3,5-Trimethylbenzene	ND	1.00	0.310	ug/L	10/12/09
4-Chlorotoluene	ND	1.00	0.310	ug/L	10/12/09
Chlorobenzene	ND	0.500	0.150	ug/L	10/12/09
4-Methyl-2-pentanone (MIBK)	ND	10.0	3.10	ug/L	10/12/09
cis-1,2-Dichloroethene	ND	1.00	0.310	ug/L	10/12/09
4-Isopropyltoluene	ND	1.00	0.310	ug/L	10/12/09
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	10/12/09
n-Propylbenzene	ND	1.00	0.310	ug/L	10/12/09
Styrene	ND	1.00	0.310	ug/L	10/12/09
Dibromomethane	ND	1.00	0.310	ug/L	10/12/09
trans-1,3-Dichloropropene	ND	1.00	0.310	ug/L	10/12/09
1,2,4-Trichlorobenzene	ND	1.00	0.310	ug/L	10/12/09
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	10/12/09
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	10/12/09
Methyl-t-butyl ether	ND	5.00	1.50	ug/L	10/12/09
Tetrachloroethene	ND	1.00	0.310	ug/L	10/12/09
Dibromochloromethane	ND	0.500	0.150	ug/L	10/12/09
1,3-Dichloropropane	ND	0.400	0.120	ug/L	10/12/09
1,2-Dibromoethane	ND	1.00	0.310	ug/L	10/12/09
Carbon tetrachloride	ND	1.00	0.310	ug/L	10/12/09
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	10/12/09
Chloroform	ND	1.00	0.300	ug/L	10/12/09
Bromobenzene	ND	1.00	0.310	ug/L	10/12/09
Chloromethane	ND	1.00	0.310	ug/L	10/12/09
1,2,3-Trichloropropane	ND	1.00	0.310	ug/L	10/12/09
Bromomethane	ND	3.00	0.940	ug/L	10/12/09
Bromochloromethane	ND	1.00	0.310	ug/L	10/12/09
Vinyl chloride	ND	1.00	0.310	ug/L	10/12/09
Dichlorodifluoromethane	ND	1.00	0.310	ug/L	10/12/09
Chloroethane	ND	1.00	0.310	ug/L	10/12/09
sec-Butylbenzene	ND	1.00	0.310	ug/L	10/12/09
Bromodichloromethane	ND	0.500	0.150	ug/L	10/12/09



**SGS Ref.#** 931412 Method Blank  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20101  
**Method** SW5030B  
**Date** 10/12/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

1,1-Dichloroethene	ND	1.00	0.310	ug/L	10/12/09
2-Butanone (MEK)	ND	10.0	3.10	ug/L	10/12/09
Methylene chloride	ND	5.00	1.00	ug/L	10/12/09
Trichlorofluoromethane	ND	1.00	0.310	ug/L	10/12/09
P & M -Xylene	ND	2.00	0.620	ug/L	10/12/09
Naphthalene	ND	2.00	0.620	ug/L	10/12/09
o-Xylene	ND	1.00	0.310	ug/L	10/12/09
Bromoform	ND	1.00	0.310	ug/L	10/12/09
1,2,4-Trimethylbenzene	ND	1.00	0.310	ug/L	10/12/09
tert-Butylbenzene	ND	1.00	0.310	ug/L	10/12/09
1,1,1-Trichloroethane	ND	1.00	0.310	ug/L	10/12/09
1,1-Dichloroethane	ND	1.00	0.310	ug/L	10/12/09
2-Chlorotoluene	ND	1.00	0.310	ug/L	10/12/09
Trichloroethene	ND	1.00	0.310	ug/L	10/12/09
trans-1,2-Dichloroethene	ND	1.00	0.310	ug/L	10/12/09
1,2-Dichlorobenzene	ND	1.00	0.310	ug/L	10/12/09
2,2-Dichloropropane	ND	1.00	0.310	ug/L	10/12/09
Hexachlorobutadiene	ND	1.00	0.310	ug/L	10/12/09
Isopropylbenzene (Cumene)	ND	1.00	0.310	ug/L	10/12/09
2-Hexanone	ND	10.0	3.10	ug/L	10/12/09
1,2-Dichloropropane	ND	1.00	0.310	ug/L	10/12/09
1,1-Dichloropropene	ND	1.00	0.310	ug/L	10/12/09
1,1,2-Trichloroethane	ND	1.00	0.310	ug/L	10/12/09
1,3-Dichlorobenzene	ND	1.00	0.310	ug/L	10/12/09
1,2,3-Trichlorobenzene	ND	1.00	0.310	ug/L	10/12/09

**Surrogates**

1,2-Dichloroethane-D4 <surr>	99.8	73-120		%	10/12/09
Toluene-d8 <surr>	102	80-120		%	10/12/09
4-Bromofluorobenzene <surr>	94.8	76-120		%	10/12/09

**Batch** VMS10917  
**Method** SW8260B  
**Instrument** HP 5890 Series II MS3 VNA



SGS Ref.# 931615 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20105  
Method SW5030B  
Date 10/12/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963006, 1095963007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 931615 Method Blank  
 Client Name Shannon & Wilson-Fairbanks  
 Project Name/# 31-1-11472-001 Northway Adot  
 Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
 Prep Batch VXX20105  
 Method SW5030B  
 Date 10/12/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>					
Benzene	ND	0.400	0.120	ug/L	10/13/09
Toluene	ND	1.00	0.310	ug/L	10/13/09
Ethylbenzene	ND	1.00	0.310	ug/L	10/13/09
n-Butylbenzene	ND	1.00	0.310	ug/L	10/13/09
Carbon disulfide	ND	2.00	0.620	ug/L	10/13/09
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	10/13/09
1,2-Dichloroethane	ND	0.500	0.150	ug/L	10/13/09
1,3,5-Trimethylbenzene	ND	1.00	0.310	ug/L	10/13/09
4-Chlorotoluene	ND	1.00	0.310	ug/L	10/13/09
Chlorobenzene	ND	0.500	0.150	ug/L	10/13/09
4-Methyl-2-pentanone (MIBK)	ND	10.0	3.10	ug/L	10/13/09
cis-1,2-Dichloroethene	ND	1.00	0.310	ug/L	10/13/09
4-Isopropyltoluene	ND	1.00	0.310	ug/L	10/13/09
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	10/13/09
n-Propylbenzene	ND	1.00	0.310	ug/L	10/13/09
Styrene	ND	1.00	0.310	ug/L	10/13/09
Dibromomethane	ND	1.00	0.310	ug/L	10/13/09
trans-1,3-Dichloropropene	ND	1.00	0.310	ug/L	10/13/09
1,2,4-Trichlorobenzene	ND	1.00	0.310	ug/L	10/13/09
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	10/13/09
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	10/13/09
Methyl-t-butyl ether	ND	5.00	1.50	ug/L	10/13/09
Tetrachloroethene	ND	1.00	0.310	ug/L	10/13/09
Dibromochloromethane	ND	0.500	0.150	ug/L	10/13/09
1,3-Dichloropropane	ND	0.400	0.120	ug/L	10/13/09
1,2-Dibromoethane	ND	1.00	0.310	ug/L	10/13/09
Carbon tetrachloride	ND	1.00	0.310	ug/L	10/13/09
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	10/13/09
Chloroform	ND	1.00	0.300	ug/L	10/13/09
Bromobenzene	ND	1.00	0.310	ug/L	10/13/09
Chloromethane	ND	1.00	0.310	ug/L	10/13/09
1,2,3-Trichloropropane	ND	1.00	0.310	ug/L	10/13/09
Bromomethane	ND	3.00	0.940	ug/L	10/13/09
Bromochloromethane	ND	1.00	0.310	ug/L	10/13/09
Vinyl chloride	ND	1.00	0.310	ug/L	10/13/09
Dichlorodifluoromethane	ND	1.00	0.310	ug/L	10/13/09
Chloroethane	ND	1.00	0.310	ug/L	10/13/09
sec-Butylbenzene	ND	1.00	0.310	ug/L	10/13/09
Bromodichloromethane	ND	0.500	0.150	ug/L	10/13/09



**SGS Ref.#** 931615 Method Blank  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20105  
**Method** SW5030B  
**Date** 10/12/2009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

1,1-Dichloroethene	ND	1.00	0.310	ug/L	10/13/09
2-Butanone (MEK)	ND	10.0	3.10	ug/L	10/13/09
Methylene chloride	ND	5.00	1.00	ug/L	10/13/09
Trichlorofluoromethane	ND	1.00	0.310	ug/L	10/13/09
P & M -Xylene	ND	2.00	0.620	ug/L	10/13/09
Naphthalene	ND	2.00	0.620	ug/L	10/13/09
o-Xylene	ND	1.00	0.310	ug/L	10/13/09
Bromoform	ND	1.00	0.310	ug/L	10/13/09
1,2,4-Trimethylbenzene	ND	1.00	0.310	ug/L	10/13/09
tert-Butylbenzene	ND	1.00	0.310	ug/L	10/13/09
1,1,1-Trichloroethane	ND	1.00	0.310	ug/L	10/13/09
1,1-Dichloroethane	ND	1.00	0.310	ug/L	10/13/09
2-Chlorotoluene	ND	1.00	0.310	ug/L	10/13/09
Trichloroethene	ND	1.00	0.310	ug/L	10/13/09
trans-1,2-Dichloroethene	ND	1.00	0.310	ug/L	10/13/09
1,2-Dichlorobenzene	ND	1.00	0.310	ug/L	10/13/09
2,2-Dichloropropane	ND	1.00	0.310	ug/L	10/13/09
Hexachlorobutadiene	ND	1.00	0.310	ug/L	10/13/09
Isopropylbenzene (Cumene)	ND	1.00	0.310	ug/L	10/13/09
2-Hexanone	ND	10.0	3.10	ug/L	10/13/09
1,2-Dichloropropane	ND	1.00	0.310	ug/L	10/13/09
1,1-Dichloropropene	ND	1.00	0.310	ug/L	10/13/09
1,1,2-Trichloroethane	ND	1.00	0.310	ug/L	10/13/09
1,3-Dichlorobenzene	ND	1.00	0.310	ug/L	10/13/09
1,2,3-Trichlorobenzene	ND	1.00	0.310	ug/L	10/13/09

**Surrogates**

1,2-Dichloroethane-D4 <surr>	95.7	73-120		%	10/13/09
Toluene-d8 <surr>	102	80-120		%	10/13/09
4-Bromofluorobenzene <surr>	97.4	76-120		%	10/13/09

**Batch** VMS10921  
**Method** SW8260B  
**Instrument** HP 5890 Series II MS3 VNA





SGS Ref.# 931874 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20113  
Method SW5030B  
Date 10/13/2009

QC results affect the following production samples:

1095963003, 1095963004, 1095963005, 1095963006, 1095963007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

Benzene	ND	0.400	0.120	ug/L	10/13/09
o-Xylene	ND	1.00	0.310	ug/L	10/13/09

**Surrogates**

1,2-Dichloroethane-D4 <surr>	97.2	73-120		%	10/13/09
Toluene-d8 <surr>	103	80-120		%	10/13/09
4-Bromofluorobenzene <surr>	96.1	76-120		%	10/13/09

Batch VMS10926  
Method SW8260B  
Instrument HP 5890 Series II MS3 VNA



SGS Ref.# 931943 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch XXX21827  
Method SW3520C  
Date 10/15/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963006, 1095963007, 1095963008

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Semivolatile Organic Fuels Department</u></b>					
Diesel Range Organics	ND	0.800	0.250	mg/L	10/16/09
<b>Surrogates</b>					
5a Androstane <surr>	80.7	60-120		%	10/16/09
Batch	XFC8960				
Method	AK102				
Instrument	HP 6890 Series II FID SV D R				



SGS Ref.# 932634 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20135  
Method SW5030B  
Date 10/16/2009

QC results affect the following production samples:  
1095963006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

Benzene	ND	0.400	0.120	ug/L	10/16/09
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**Surrogates**

1,2-Dichloroethane-D4 <surr>	102	73-120		%	10/16/09
Toluene-d8 <surr>	99.7	80-120		%	10/16/09
4-Bromofluorobenzene <surr>	105	76-120		%	10/16/09

Batch VMS10936  
Method SW8260B  
Instrument HP 5890 Series II MS1 VJA



**SGS Ref.#** 933012 Method Blank  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20141  
**Method** SW5030B  
**Date** 10/17/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963007, 1095963008, 1095963009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b><u>Volatile Fuels Department</u></b>					
Gasoline Range Organics	ND	0.100	0.0310	mg/L	10/17/09
Benzene	ND	0.000500	0.000150	mg/L	10/17/09
Toluene	ND	0.00200	0.000620	mg/L	10/17/09
Ethylbenzene	ND	0.00200	0.000620	mg/L	10/17/09
o-Xylene	ND	0.00200	0.000620	mg/L	10/17/09
P & M -Xylene	ND	0.00200	0.000620	mg/L	10/17/09
<b>Surrogates</b>					
4-Bromofluorobenzene <surr>	106	50-150		%	10/17/09
1,4-Difluorobenzene <surr>	108	80-120		%	10/17/09
<b>Batch</b>	VFC9714				
<b>Method</b>	AK101				
<b>Instrument</b>	HP 5890 Series II PID+HECD VBA				
Benzene	ND	0.500	0.150	ug/L	10/17/09
Toluene	ND	2.00	0.620	ug/L	10/17/09
Ethylbenzene	ND	2.00	0.620	ug/L	10/17/09
o-Xylene	ND	2.00	0.620	ug/L	10/17/09
P & M -Xylene	ND	2.00	0.620	ug/L	10/17/09
<b>Surrogates</b>					
1,4-Difluorobenzene <surr>	108	80-120		%	10/17/09
<b>Batch</b>	VFC9714				
<b>Method</b>	SW8021B				
<b>Instrument</b>	HP 5890 Series II PID+HECD VBA				



SGS Ref.# 933881 Method Blank  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch MXX22423  
Method SW3010A  
Date 10/21/2009

QC results affect the following production samples:  
1095963006, 1095963007

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
<b>Metals by ICP/MS</b>					
Arsenic	ND	5.00	1.50	ug/L	10/22/09
Barium	ND	3.00	0.940	ug/L	10/22/09
Cadmium	ND	2.00	0.600	ug/L	10/22/09
Chromium	ND	4.00	1.20	ug/L	10/22/09
Lead	ND	1.00	0.310	ug/L	10/22/09
Nickel	ND	2.00	0.620	ug/L	10/22/09
Vanadium	ND	20.0	6.20	ug/L	10/22/09
Batch	MMS6155				
Method	SW6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				



SGS Ref.#	930991	Lab Control Sample	Printed Date/Time	10/27/2009	11:25
	930992	Lab Control Sample Duplicate	Prep	Batch	XXX21800
Client Name	Shannon & Wilson-Fairbanks		Method	SW3520C	
Project Name/#	31-1-11472-001 Northway Adot		Date	10/12/2009	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1095963001, 1095963002, 1095963003, 1095963004, 1095963005, 1095963006

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Polynuclear Aromatics GC/MS</u></b>							
Acenaphthylene	LCS	0.390	78	( 50-105 )		0.5 ug/L	10/23/2009
	LCSD	0.407	81		4	(< 30)	0.5 ug/L 10/23/2009
Acenaphthene	LCS	0.377	75	( 45-110 )		0.5 ug/L	10/23/2009
	LCSD	0.391	78		4	(< 30)	0.5 ug/L 10/23/2009
Fluorene	LCS	0.412	82	( 50-110 )		0.5 ug/L	10/23/2009
	LCSD	0.418	84		1	(< 30)	0.5 ug/L 10/23/2009
Phenanthrene	LCS	0.414	83	( 50-115 )		0.5 ug/L	10/23/2009
	LCSD	0.422	84		2	(< 30)	0.5 ug/L 10/23/2009
Anthracene	LCS	0.442	89	( 55-110 )		0.5 ug/L	10/23/2009
	LCSD	0.447	90		1	(< 30)	0.5 ug/L 10/23/2009
Fluoranthene	LCS	0.487	98	( 55-125 )		0.5 ug/L	10/23/2009
	LCSD	0.484	97		1	(< 30)	0.5 ug/L 10/23/2009
Pyrene	LCS	0.471	94	( 50-130 )		0.5 ug/L	10/23/2009
	LCSD	0.464	93		2	(< 30)	0.5 ug/L 10/23/2009
Benzo(a)Anthracene	LCS	0.511	102	( 55-120 )		0.5 ug/L	10/23/2009
	LCSD	0.506	101		1	(< 30)	0.5 ug/L 10/23/2009
Chrysene	LCS	0.478	96	( 55-120 )		0.5 ug/L	10/23/2009
	LCSD	0.470	94		2	(< 30)	0.5 ug/L 10/23/2009
Benzo[b]Fluoranthene	LCS	0.500	100	( 46-130 )		0.5 ug/L	10/23/2009
	LCSD	0.499	100		0	(< 30)	0.5 ug/L 10/23/2009
Benzo[k]fluoranthene	LCS	0.498	100	( 60-125 )		0.5 ug/L	10/23/2009
	LCSD	0.475	95		5	(< 30)	0.5 ug/L 10/23/2009
Benzo[a]pyrene	LCS	0.507	101	( 55-120 )		0.5 ug/L	10/23/2009
	LCSD	0.495	99		3	(< 30)	0.5 ug/L 10/23/2009
Indeno[1,2,3-c,d] pyrene	LCS	0.493	99	( 45-125 )		0.5 ug/L	10/23/2009
	LCSD	0.474	95		4	(< 30)	0.5 ug/L 10/23/2009



**SGS Ref.#** 930991 Lab Control Sample  
 930992 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** XXX21800  
**Method** SW3520C  
**Date** 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Polynuclear Aromatics GC/MS</u></b>							
Dibenzo[a,h]anthracene	LCS	0.501	100	( 41-140 )		0.5 ug/L	10/23/2009
	LCSD	0.462	92		8	(< 30 )	0.5 ug/L 10/23/2009
Benzo[g,h,i]perylene	LCS	0.480	96	( 46-125 )		0.5 ug/L	10/23/2009
	LCSD	0.462	93		4	(< 30 )	0.5 ug/L 10/23/2009
Naphthalene	LCS	0.363	73	( 42-100 )		0.5 ug/L	10/23/2009
	LCSD	0.389	78		7	(< 30 )	0.5 ug/L 10/23/2009
1-Methylnaphthalene	LCS	0.369	74	( 46-115 )		0.5 ug/L	10/23/2009
	LCSD	0.381	76		3	(< 30 )	0.5 ug/L 10/23/2009
2-Methylnaphthalene	LCS	0.359	72	( 45-105 )		0.5 ug/L	10/23/2009
	LCSD	0.377	75		5	(< 30 )	0.5 ug/L 10/23/2009
<b>Surrogates</b>							
Terphenyl-d14 <surr>	LCS		91	( 50-135 )			10/23/2009
	LCSD		90		1		10/23/2009

**Batch** XMS5156  
**Method** 8270D SIMS  
**Instrument** HP 6890 Series II MS2 SVOA



SGS Ref.# 931413 Lab Control Sample  
931414 Lab Control Sample Duplicate  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20101  
Method SW5030B  
Date 10/12/2009

QC results affect the following production samples:

1095963009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy





SGS Ref.#	931413	Lab Control Sample	Printed Date/Time	10/27/2009	11:25
	931414	Lab Control Sample Duplicate	Prep	Batch	VXX20101
Client Name	Shannon & Wilson-Fairbanks		Method	SW5030B	
Project Name/#	31-1-11472-001 Northway Adot		Date	10/12/2009	
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Benzene	LCS	32.6	109	( 80-120 )		30 ug/L	10/12/2009
	LCSD	33.4	111		2	(< 20 )	30 ug/L
Toluene	LCS	31.0	103	( 77-120 )		30 ug/L	10/12/2009
	LCSD	32.4	108		5	(< 20 )	30 ug/L
Ethylbenzene	LCS	33.1	110	( 80-120 )		30 ug/L	10/12/2009
	LCSD	34.5	115		4	(< 20 )	30 ug/L
n-Butylbenzene	LCS	31.2	104	( 80-124 )		30 ug/L	10/12/2009
	LCSD	31.6	105		1	(< 20 )	30 ug/L
Carbon disulfide	LCS	46.8	104	( 72-123 )		45 ug/L	10/12/2009
	LCSD	50.3	112		7	(< 20 )	45 ug/L
1,4-Dichlorobenzene	LCS	31.1	104	( 80-120 )		30 ug/L	10/12/2009
	LCSD	31.8	106		2	(< 20 )	30 ug/L
1,2-Dichloroethane	LCS	31.0	103	( 80-129 )		30 ug/L	10/12/2009
	LCSD	31.6	105		2	(< 20 )	30 ug/L
1,3,5-Trimethylbenzene	LCS	29.2	97	( 80-128 )		30 ug/L	10/12/2009
	LCSD	29.9	100		2	(< 20 )	30 ug/L
4-Chlorotoluene	LCS	28.3	94	( 79-128 )		30 ug/L	10/12/2009
	LCSD	29.0	97		3	(< 20 )	30 ug/L
Chlorobenzene	LCS	32.9	110	( 80-120 )		30 ug/L	10/12/2009
	LCSD	34.3	114		4	(< 20 )	30 ug/L
4-Methyl-2-pentanone (MIBK)	LCS	110	123	( 69-134 )		90 ug/L	10/12/2009
	LCSD	105	116		5	(< 20 )	90 ug/L
cis-1,2-Dichloroethene	LCS	33.0	110	( 80-125 )		30 ug/L	10/12/2009
	LCSD	34.3	114		4	(< 20 )	30 ug/L
4-Isopropyltoluene	LCS	30.4	101	( 80-125 )		30 ug/L	10/12/2009
	LCSD	31.1	104		2	(< 20 )	30 ug/L
cis-1,3-Dichloropropene	LCS	34.6	115	( 80-120 )		30 ug/L	10/12/2009
	LCSD	33.7	112		2	(< 20 )	30 ug/L



SGS Ref.#	931413	Lab Control Sample	Printed Date/Time	10/27/2009	11:25
	931414	Lab Control Sample Duplicate	Prep	VXX20101	
Client Name	Shannon & Wilson-Fairbanks		Batch	SW5030B	
Project Name/#	31-1-11472-001 Northway Adot		Method		
Matrix	Water (Surface, Eff., Ground)		Date	10/12/2009	

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
n-Propylbenzene	LCS	27.7	92	( 80-129 )		30 ug/L	10/12/2009
	LCSD	28.5	95		3	(< 20 )	30 ug/L 10/12/2009
Styrene	LCS	33.7	112	( 80-120 )		30 ug/L	10/12/2009
	LCSD	35.0	117		4	(< 20 )	30 ug/L 10/12/2009
Dibromomethane	LCS	32.8	109	( 80-120 )		30 ug/L	10/12/2009
	LCSD	32.6	109		1	(< 20 )	30 ug/L 10/12/2009
trans-1,3-Dichloropropene	LCS	34.3	114	( 80-124 )		30 ug/L	10/12/2009
	LCSD	33.2	111		3	(< 20 )	30 ug/L 10/12/2009
1,2,4-Trichlorobenzene	LCS	32.9	110	( 80-120 )		30 ug/L	10/12/2009
	LCSD	32.9	110		0	(< 20 )	30 ug/L 10/12/2009
1,1,2,2-Tetrachloroethane	LCS	30.3	101	( 76-123 )		30 ug/L	10/12/2009
	LCSD	30.4	101		0	(< 20 )	30 ug/L 10/12/2009
1,2-Dibromo-3-chloropropane	LCS	33.1	110	( 73-130 )		30 ug/L	10/12/2009
	LCSD	33.3	111		1	(< 20 )	30 ug/L 10/12/2009
Methyl-t-butyl ether	LCS	47.2	105	( 80-120 )		45 ug/L	10/12/2009
	LCSD	47.3	105		0	(< 20 )	45 ug/L 10/12/2009
Tetrachloroethene	LCS	37.0	123 *	( 79-122 )		30 ug/L	10/12/2009
	LCSD	38.7	129 *		5	(< 20 )	30 ug/L 10/12/2009
Dibromochloromethane	LCS	35.4	118	( 80-120 )		30 ug/L	10/12/2009
	LCSD	36.3	121 *		3	(< 20 )	30 ug/L 10/12/2009
1,3-Dichloropropane	LCS	32.4	108	( 80-121 )		30 ug/L	10/12/2009
	LCSD	33.0	110		2	(< 20 )	30 ug/L 10/12/2009
1,2-Dibromoethane	LCS	33.9	113	( 80-120 )		30 ug/L	10/12/2009
	LCSD	33.6	112		1	(< 20 )	30 ug/L 10/12/2009
Carbon tetrachloride	LCS	36.2	121	( 80-126 )		30 ug/L	10/12/2009
	LCSD	37.5	125		4	(< 20 )	30 ug/L 10/12/2009
1,1,1,2-Tetrachloroethane	LCS	35.1	117	( 80-120 )		30 ug/L	10/12/2009



SGS Ref.#	931413	Lab Control Sample	Printed Date/Time	10/27/2009	11:25
	931414	Lab Control Sample Duplicate	Prep	VXX20101	
Client Name	Shannon & Wilson-Fairbanks		Batch	SW5030B	
Project Name/#	31-1-11472-001 Northway Adot		Method		
Matrix	Water (Surface, Eff., Ground)		Date	10/12/2009	

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
	LCS	36.4	121 *	4	(< 20)	30 ug/L	10/12/2009
Chloroform	LCS	31.9	106	( 80-124 )		30 ug/L	10/12/2009
	LCS	32.5	108	2	(< 20)	30 ug/L	10/12/2009
Bromobenzene	LCS	31.2	104	( 80-120 )		30 ug/L	10/12/2009
	LCS	31.4	105	0	(< 20)	30 ug/L	10/12/2009
Chloromethane	LCS	31.1	104	( 67-125 )		30 ug/L	10/12/2009
	LCS	33.4	111	7	(< 20)	30 ug/L	10/12/2009
1,2,3-Trichloropropane	LCS	29.1	97	( 80-120 )		30 ug/L	10/12/2009
	LCS	29.3	98	1	(< 20)	30 ug/L	10/12/2009
Bromomethane	LCS	28.9	96	( 30-140 )		30 ug/L	10/12/2009
	LCS	31.5	105	9	(< 20)	30 ug/L	10/12/2009
Bromochloromethane	LCS	35.5	118	( 77-129 )		30 ug/L	10/12/2009
	LCS	34.9	116	2	(< 20)	30 ug/L	10/12/2009
Vinyl chloride	LCS	32.6	109	( 72-145 )		30 ug/L	10/12/2009
	LCS	34.9	116	7	(< 20)	30 ug/L	10/12/2009
Dichlorodifluoromethane	LCS	34.4	115	( 62-153 )		30 ug/L	10/12/2009
	LCS	36.0	120	5	(< 20)	30 ug/L	10/12/2009
Chloroethane	LCS	31.0	103	( 67-133 )		30 ug/L	10/12/2009
	LCS	31.2	104	1	(< 20)	30 ug/L	10/12/2009
sec-Butylbenzene	LCS	29.5	98	( 80-120 )		30 ug/L	10/12/2009
	LCS	30.5	102	3	(< 20)	30 ug/L	10/12/2009
Bromodichloromethane	LCS	32.3	108	( 80-120 )		30 ug/L	10/12/2009
	LCS	33.3	111	3	(< 20)	30 ug/L	10/12/2009
1,1-Dichloroethene	LCS	34.2	114	( 76-130 )		30 ug/L	10/12/2009
	LCS	36.4	121	6	(< 20)	30 ug/L	10/12/2009
2-Butanone (MEK)	LCS	133	148 *	( 66-136 )		90 ug/L	10/12/2009
	LCS	133	147 *	0	(< 20)	90 ug/L	10/12/2009



**SGS Ref.#** 931413 Lab Control Sample  
 931414 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20101  
**Method** SW5030B  
**Date** 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Methylene chloride	LCS 32.6	109	( 63-131 )			30 ug/L	10/12/2009
	LCSD 32.8	109		1	(< 20)	30 ug/L	10/12/2009
Trichlorofluoromethane	LCS 32.9	110	( 68-145 )			30 ug/L	10/12/2009
	LCSD 33.1	110		1	(< 20)	30 ug/L	10/12/2009
P & M -Xylene	LCS 65.8	110	( 80-120 )			60 ug/L	10/12/2009
	LCSD 68.6	114		4	(< 20)	60 ug/L	10/12/2009
Naphthalene	LCS 31.3	104	( 75-120 )			30 ug/L	10/12/2009
	LCSD 31.2	104		0	(< 20)	30 ug/L	10/12/2009
o-Xylene	LCS 33.5	112	( 80-120 )			30 ug/L	10/12/2009
	LCSD 34.5	115		3	(< 20)	30 ug/L	10/12/2009
Bromoform	LCS 37.6	125 *	( 80-120 )			30 ug/L	10/12/2009
	LCSD 39.0	130 *		4	(< 20)	30 ug/L	10/12/2009
1,2,4-Trimethylbenzene	LCS 29.0	97	( 80-125 )			30 ug/L	10/12/2009
	LCSD 29.9	100		3	(< 20)	30 ug/L	10/12/2009
tert-Butylbenzene	LCS 30.2	101	( 80-122 )			30 ug/L	10/12/2009
	LCSD 30.9	103		2	(< 20)	30 ug/L	10/12/2009
1,1,1-Trichloroethane	LCS 35.2	117	( 80-122 )			30 ug/L	10/12/2009
	LCSD 36.2	121		3	(< 20)	30 ug/L	10/12/2009
1,1-Dichloroethane	LCS 31.9	106	( 80-120 )			30 ug/L	10/12/2009
	LCSD 31.8	106		0	(< 20)	30 ug/L	10/12/2009
2-Chlorotoluene	LCS 28.0	93	( 80-125 )			30 ug/L	10/12/2009
	LCSD 28.7	96		2	(< 20)	30 ug/L	10/12/2009
Trichloroethene	LCS 34.0	113	( 80-125 )			30 ug/L	10/12/2009
	LCSD 35.3	118		4	(< 20)	30 ug/L	10/12/2009
trans-1,2-Dichloroethene	LCS 33.5	112	( 79-132 )			30 ug/L	10/12/2009
	LCSD 35.1	117		5	(< 20)	30 ug/L	10/12/2009
1,2-Dichlorobenzene	LCS 31.6	105	( 80-120 )			30 ug/L	10/12/2009
	LCSD 31.4	105		1	(< 20)	30 ug/L	10/12/2009



<b>SGS Ref.#</b>	931413	Lab Control Sample	<b>Printed Date/Time</b>	10/27/2009	11:25
	931414	Lab Control Sample Duplicate	<b>Prep</b>	VXX20101	
<b>Client Name</b>	Shannon & Wilson-Fairbanks		<b>Batch</b>	SW5030B	
<b>Project Name/#</b>	31-1-11472-001 Northway Adot		<b>Method</b>		
<b>Matrix</b>	Water (Surface, Eff., Ground)		<b>Date</b>	10/12/2009	

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

2,2-Dichloropropane	LCS	38.5	128	( 80-132 )			30 ug/L	10/12/2009
	LCSD	38.7	129		0	(< 20 )	30 ug/L	10/12/2009
Hexachlorobutadiene	LCS	34.5	115	( 77-125 )			30 ug/L	10/12/2009
	LCSD	36.0	120		4	(< 20 )	30 ug/L	10/12/2009
Isopropylbenzene (Cumene)	LCS	33.4	111	( 80-121 )			30 ug/L	10/12/2009
	LCSD	34.7	116		4	(< 20 )	30 ug/L	10/12/2009
2-Hexanone	LCS	115	128	( 68-130 )			90 ug/L	10/12/2009
	LCSD	114	127		1	(< 20 )	90 ug/L	10/12/2009
1,2-Dichloropropane	LCS	32.3	108	( 80-121 )			30 ug/L	10/12/2009
	LCSD	33.1	110		3	(< 20 )	30 ug/L	10/12/2009
1,1-Dichloropropene	LCS	33.9	113	( 80-122 )			30 ug/L	10/12/2009
	LCSD	34.5	115		2	(< 20 )	30 ug/L	10/12/2009
1,1,2-Trichloroethane	LCS	31.9	106	( 77-120 )			30 ug/L	10/12/2009
	LCSD	32.8	109		3	(< 20 )	30 ug/L	10/12/2009
1,3-Dichlorobenzene	LCS	31.8	106	( 80-120 )			30 ug/L	10/12/2009
	LCSD	32.2	107		1	(< 20 )	30 ug/L	10/12/2009
1,2,3-Trichlorobenzene	LCS	34.2	114	( 77-120 )			30 ug/L	10/12/2009
	LCSD	35.0	117		2	(< 20 )	30 ug/L	10/12/2009

**Surrogates**

1,2-Dichloroethane-D4 <surr>	LCS		97	( 73-120 )				10/12/2009
	LCSD		96		1			10/12/2009
Toluene-d8 <surr>	LCS		98	( 80-120 )				10/12/2009
	LCSD		100		2			10/12/2009
4-Bromofluorobenzene <surr>	LCS		87	( 76-120 )				10/12/2009
	LCSD		88		0			10/12/2009



SGS Ref.# 931413 Lab Control Sample  
931414 Lab Control Sample Duplicate  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20101  
Method SW5030B  
Date 10/12/2009

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Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Volatiles Gas Chromatography/Mass Spectroscopy**

Batch VMS10917  
Method SW8260B  
Instrument HP 5890 Series II MS3 VNA



SGS Ref.# 931616 Lab Control Sample

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20105  
Method SW5030B  
Date 10/12/2009

Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963006, 1095963007

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Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy



**SGS Ref.#** 931616 Lab Control Sample  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep** VXX20105  
**Batch** SW5030B  
**Method**  
**Date** 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Benzene	LCS 30.5	102	( 80-120 )			30 ug/L	10/13/2009
Toluene	LCS 29.5	99	( 77-120 )			30 ug/L	10/13/2009
Ethylbenzene	LCS 30.7	102	( 80-120 )			30 ug/L	10/13/2009
n-Butylbenzene	LCS 27.5	92	( 80-124 )			30 ug/L	10/13/2009
Carbon disulfide	LCS 39.9	89	( 72-123 )			45 ug/L	10/13/2009
1,4-Dichlorobenzene	LCS 28.5	95	( 80-120 )			30 ug/L	10/13/2009
1,2-Dichloroethane	LCS 28.6	95	( 80-129 )			30 ug/L	10/13/2009
1,3,5-Trimethylbenzene	LCS 27.4	91	( 80-128 )			30 ug/L	10/13/2009
4-Chlorotoluene	LCS 26.5	88	( 79-128 )			30 ug/L	10/13/2009
Chlorobenzene	LCS 30.8	103	( 80-120 )			30 ug/L	10/13/2009
4-Methyl-2-pentanone (MIBK)	LCS 90.9	101	( 69-134 )			90 ug/L	10/13/2009
cis-1,2-Dichloroethene	LCS 31.4	105	( 80-125 )			30 ug/L	10/13/2009
4-Isopropyltoluene	LCS 27.9	93	( 80-125 )			30 ug/L	10/13/2009
cis-1,3-Dichloropropene	LCS 29.6	99	( 80-120 )			30 ug/L	10/13/2009
n-Propylbenzene	LCS 26.0	87	( 80-129 )			30 ug/L	10/13/2009
Styrene	LCS 31.8	106	( 80-120 )			30 ug/L	10/13/2009
Dibromomethane	LCS 31.0	103	( 80-120 )			30 ug/L	10/13/2009
trans-1,3-Dichloropropene	LCS 29.1	97	( 80-124 )			30 ug/L	10/13/2009
1,2,4-Trichlorobenzene	LCS 28.2	94	( 80-120 )			30 ug/L	10/13/2009
1,1,2,2-Tetrachloroethane	LCS 27.1	90	( 76-123 )			30 ug/L	10/13/2009
1,2-Dibromo-3-chloropropane	LCS 25.7	86	( 73-130 )			30 ug/L	10/13/2009





**SGS Ref.#** 931616 Lab Control Sample  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep** VXX20105  
**Batch** SW5030B  
**Method**  
**Date** 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Methyl-t-butyl ether	LCS 42.5	95	( 80-120 )			45 ug/L	10/13/2009
Tetrachloroethene	LCS 32.6	109	( 79-122 )			30 ug/L	10/13/2009
Dibromochloromethane	LCS 31.8	106	( 80-120 )			30 ug/L	10/13/2009
1,3-Dichloropropane	LCS 30.5	102	( 80-121 )			30 ug/L	10/13/2009
1,2-Dibromoethane	LCS 31.5	105	( 80-120 )			30 ug/L	10/13/2009
Carbon tetrachloride	LCS 30.9	103	( 80-126 )			30 ug/L	10/13/2009
1,1,1,2-Tetrachloroethane	LCS 32.7	109	( 80-120 )			30 ug/L	10/13/2009
Chloroform	LCS 29.4	98	( 80-124 )			30 ug/L	10/13/2009
Bromobenzene	LCS 28.7	96	( 80-120 )			30 ug/L	10/13/2009
Chloromethane	LCS 28.3	95	( 67-125 )			30 ug/L	10/13/2009
1,2,3-Trichloropropane	LCS 25.8	86	( 80-120 )			30 ug/L	10/13/2009
Bromomethane	LCS 24.6	82	( 30-140 )			30 ug/L	10/13/2009
Bromochloromethane	LCS 33.6	112	( 77-129 )			30 ug/L	10/13/2009
Vinyl chloride	LCS 28.6	95	( 72-145 )			30 ug/L	10/13/2009
Dichlorodifluoromethane	LCS 25.4	85	( 62-153 )			30 ug/L	10/13/2009
Chloroethane	LCS 26.2	87	( 67-133 )			30 ug/L	10/13/2009
sec-Butylbenzene	LCS 27.4	91	( 80-120 )			30 ug/L	10/13/2009
Bromodichloromethane	LCS 29.5	98	( 80-120 )			30 ug/L	10/13/2009
1,1-Dichloroethene	LCS 29.9	100	( 76-130 )			30 ug/L	10/13/2009
2-Butanone (MEK)	LCS 91.9	102	( 66-136 )			90 ug/L	10/13/2009



**SGS Ref.#** 931616 Lab Control Sample  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep** VXX20105  
**Batch** SW5030B  
**Method** SW5030B  
**Date** 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Methylene chloride	LCS 30.0	100	( 63-131 )			30 ug/L	10/13/2009
Trichlorofluoromethane	LCS 26.5	89	( 68-145 )			30 ug/L	10/13/2009
P & M -Xylene	LCS 60.9	102	( 80-120 )			60 ug/L	10/13/2009
Naphthalene	LCS 26.1	87	( 75-120 )			30 ug/L	10/13/2009
o-Xylene	LCS 31.3	104	( 80-120 )			30 ug/L	10/13/2009
Bromoform	LCS 33.7	112	( 80-120 )			30 ug/L	10/13/2009
1,2,4-Trimethylbenzene	LCS 27.1	91	( 80-125 )			30 ug/L	10/13/2009
tert-Butylbenzene	LCS 28.0	93	( 80-122 )			30 ug/L	10/13/2009
1,1,1-Trichloroethane	LCS 30.8	103	( 80-122 )			30 ug/L	10/13/2009
1,1-Dichloroethane	LCS 28.0	93	( 80-120 )			30 ug/L	10/13/2009
2-Chlorotoluene	LCS 26.2	88	( 80-125 )			30 ug/L	10/13/2009
Trichloroethene	LCS 31.0	103	( 80-125 )			30 ug/L	10/13/2009
trans-1,2-Dichloroethene	LCS 30.0	100	( 79-132 )			30 ug/L	10/13/2009
1,2-Dichlorobenzene	LCS 28.8	96	( 80-120 )			30 ug/L	10/13/2009
2,2-Dichloropropane	LCS 27.5	92	( 80-132 )			30 ug/L	10/13/2009
Hexachlorobutadiene	LCS 28.8	96	( 77-125 )			30 ug/L	10/13/2009
Isopropylbenzene (Cumene)	LCS 31.0	103	( 80-121 )			30 ug/L	10/13/2009
2-Hexanone	LCS 83.1	92	( 68-130 )			90 ug/L	10/13/2009
1,2-Dichloropropane	LCS 30.3	101	( 80-121 )			30 ug/L	10/13/2009
1,1-Dichloropropene	LCS 30.3	101	( 80-122 )			30 ug/L	10/13/2009
1,1,2-Trichloroethane	LCS 30.0	100	( 77-120 )			30 ug/L	10/13/2009



SGS Ref.# 931616 Lab Control Sample  
Client Name Shannon & Wilson-Fairbanks  
Project Name/# 31-1-11472-001 Northway Adot  
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 10/27/2009 11:25  
Prep Batch VXX20105  
Method SW5030B  
Date 10/12/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Volatile Gas Chromatography/Mass Spectroscopy**

1,3-Dichlorobenzene	LCS	29.1	97	( 80-120 )		30 ug/L	10/13/2009
1,2,3-Trichlorobenzene	LCS	28.8	96	( 77-120 )		30 ug/L	10/13/2009
<b>Surrogates</b>							
1,2-Dichloroethane-D4 <surr>	LCS		93	( 73-120 )			10/13/2009
Toluene-d8 <surr>	LCS		102	( 80-120 )			10/13/2009
4-Bromofluorobenzene <surr>	LCS		90	( 76-120 )			10/13/2009

Batch VMS10921  
Method SW8260B  
Instrument HP 5890 Series II MS3 VNA



**SGS Ref.#** 931875 Lab Control Sample  
 931876 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20113  
**Method** SW5030B  
**Date** 10/13/2009

QC results affect the following production samples:  
 1095963003, 1095963004, 1095963005, 1095963006, 1095963007

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Benzene	LCS	33.5	112	( 80-120 )		30 ug/L	10/13/2009
	LCSD	31.7	106		5	(< 20 )	30 ug/L 10/13/2009
o-Xylene	LCS	33.7	112	( 80-120 )		30 ug/L	10/13/2009
	LCSD	32.4	108		4	(< 20 )	30 ug/L 10/13/2009
<b>Surrogates</b>							
1,2-Dichloroethane-D4 <surr>	LCS		97	( 73-120 )			10/13/2009
	LCSD		98		1		10/13/2009
Toluene-d8 <surr>	LCS		100	( 80-120 )			10/13/2009
	LCSD		101		1		10/13/2009
4-Bromofluorobenzene <surr>	LCS		90	( 76-120 )			10/13/2009
	LCSD		88		2		10/13/2009

**Batch** VMS10926  
**Method** SW8260B  
**Instrument** HP 5890 Series II MS3 VNA



**SGS Ref.#** 931944 Lab Control Sample  
 931945 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** XXX21827  
**Method** SW3520C  
**Date** 10/15/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963006, 1095963007, 1095963008

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Semivolatile Organic Fuels Department**

Diesel Range Organics	LCS	18.4	92	( 75-125 )		20 mg/L	10/16/2009
	LCSD	17.7	89		4	(< 20 )	20 mg/L 10/16/2009

**Surrogates**

5a Androstane <surr>	LCS		86	( 60-120 )			10/16/2009
	LCSD		85		1		10/16/2009

**Batch** XFC8960  
**Method** AK102  
**Instrument** HP 6890 Series II FID SV D R



**SGS Ref.#** 932635 Lab Control Sample  
 932640 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20135  
**Method** SW5030B  
**Date** 10/16/2009

QC results affect the following production samples:

1095963006

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Gas Chromatography/Mass Spectroscopy</u></b>							
Benzene	LCS	28.9	96	( 80-120 )		30 ug/L	10/16/2009
	LCSD	28.9	96		0	(< 20 )	30 ug/L 10/16/2009
<b>Surrogates</b>							
1,2-Dichloroethane-D4 <surr>	LCS		99	( 73-120 )			10/16/2009
	LCSD		99		1		10/16/2009
Toluene-d8 <surr>	LCS		99	( 80-120 )			10/16/2009
	LCSD		103		4		10/16/2009
4-Bromofluorobenzene <surr>	LCS		100	( 76-120 )			10/16/2009
	LCSD		101		1		10/16/2009

**Batch** VMS10936  
**Method** SW8260B  
**Instrument** HP 5890 Series II MS1 VJA



**SGS Ref.#** 933013 Lab Control Sample  
 933014 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20141  
**Method** SW5030B  
**Date** 10/17/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963007, 1095963008, 1095963009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Fuels Department</u></b>							
Benzene	LCS 0.107	107	( 80-120 )			0.100 mg/L	10/17/2009
	LCSD 0.112	112		5	(< 20 )	0.100 mg/L	10/17/2009
Toluene	LCS 0.103	103	( 80-120 )			0.100 mg/L	10/17/2009
	LCSD 0.111	111		7	(< 20 )	0.100 mg/L	10/17/2009
Ethylbenzene	LCS 0.106	106	( 87-125 )			0.100 mg/L	10/17/2009
	LCSD 0.111	111		5	(< 20 )	0.100 mg/L	10/17/2009
o-Xylene	LCS 0.103	103	( 85-120 )			0.100 mg/L	10/17/2009
	LCSD 0.109	109		6	(< 20 )	0.100 mg/L	10/17/2009
P & M -Xylene	LCS 0.211	106	( 87-125 )			0.200 mg/L	10/17/2009
	LCSD 0.223	111		5	(< 20 )	0.200 mg/L	10/17/2009
<b>Surrogates</b>							
1,4-Difluorobenzene <surr>	LCS	104	( 80-120 )				10/17/2009
	LCSD	104		0			10/17/2009

**Batch** VFC9714  
**Method** AK101  
**Instrument** HP 5890 Series II PID+HECD VBA



**SGS Ref.#** 933013 Lab Control Sample  
 933014 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20141  
**Method** SW5030B  
**Date** 10/17/2009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Volatile Fuels Department</u></b>							
Benzene	LCS 107	107	( 80-120 )			100 ug/L	10/17/2009
	LCSD 112	112		5	(< 20 )	100 ug/L	10/17/2009
Toluene	LCS 103	103	( 80-120 )			100 ug/L	10/17/2009
	LCSD 111	111		7	(< 20 )	100 ug/L	10/17/2009
Ethylbenzene	LCS 106	106	( 87-125 )			100 ug/L	10/17/2009
	LCSD 111	111		5	(< 20 )	100 ug/L	10/17/2009
o-Xylene	LCS 103	103	( 85-120 )			100 ug/L	10/17/2009
	LCSD 109	109		6	(< 20 )	100 ug/L	10/17/2009
P & M -Xylene	LCS 211	106	( 87-125 )			200 ug/L	10/17/2009
	LCSD 223	111		5	(< 20 )	200 ug/L	10/17/2009
<b>Surrogates</b>							
1,4-Difluorobenzene <surr>	LCS	104	( 80-120 )				10/17/2009
	LCSD	104		0			10/17/2009

**Batch** VFC9714  
**Method** SW8021B  
**Instrument** HP 5890 Series II PID+HECD VBA





**SGS Ref.#** 933015 Lab Control Sample  
 933016 Lab Control Sample Duplicate  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** VXX20141  
**Method** SW5030B  
**Date** 10/17/2009

QC results affect the following production samples:

1095963001, 1095963003, 1095963004, 1095963005, 1095963007, 1095963008, 1095963009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Volatile Fuels Department**

Gasoline Range Organics	LCS	0.213	106	( 60-120 )		0.200 mg/L	10/17/2009
	LCSD	0.206	103		3	(< 20 )	0.200 mg/L

**Surrogates**

4-Bromofluorobenzene <surr>	LCS		108	( 50-150 )			10/17/2009
	LCSD		108		0		10/18/2009

**Batch** VFC9714  
**Method** AK101  
**Instrument** HP 5890 Series II PID+HECD VBA



**SGS Ref.#** 933882 Lab Control Sample  
**Client Name** Shannon & Wilson-Fairbanks  
**Project Name/#** 31-1-11472-001 Northway Adot  
**Matrix** Water (Surface, Eff., Ground)

**Printed Date/Time** 10/27/2009 11:25  
**Prep Batch** MXX22423  
**Method** SW3010A  
**Date** 10/21/2009

QC results affect the following production samples:  
 1095963006, 1095963007

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<b><u>Metals by ICP/MS</u></b>							
Arsenic	LCS	1040	104	( 80-120 )		1000 ug/L	10/22/2009
Barium	LCS	1040	104	( 80-120 )		1000 ug/L	10/22/2009
Cadmium	LCS	102	102	( 80-120 )		100 ug/L	10/22/2009
Chromium	LCS	416	104	( 80-120 )		400 ug/L	10/22/2009
Lead	LCS	1020	102	( 80-120 )		1000 ug/L	10/22/2009
Nickel	LCS	1010	101	( 80-120 )		1000 ug/L	10/22/2009
Vanadium	LCS	202	101	( 80-120 )		200 ug/L	10/22/2009

**Batch** MMS6155  
**Method** SW6020  
**Instrument** Perkin Elmer Sciex ICP-MS P3



SGS Ref.# 933883 Matrix Spike  
933884 Matrix Spike Duplicate

Printed Date/Time 10/27/2009 11:25  
Prep Batch MXX22423  
Method 3010 H2O Digest for Metals ICI  
Date 10/21/2009

Original 1095622001  
Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:  
1095963006, 1095963007

Parameter	Qualifiers	Original Result	QC Result	Pet Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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**Metals by ICP/MS**

Lead	MS	ND	974	97	( 80-120 )			1000	ug/L 10/22/2009
	MSD		989	99		2	(< 15 )	1000	ug/L 10/22/2009

Batch MMS6155  
Method SW6020  
Instrument Perkin Elmer Sciex ICP-MS P3



1095963



Services Inc. ANALYSIS RECORD

- Alaska
- Maryland
- New Jersey
- North Carolina
- Ohio
- West Virginia

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Page 1 of 1

1  
 CLIENT: Shannon & Wilson  
 CONTACT: Andrea Carlson / Mark Lockwood  
 PHONE NO: 479-0600  
 PROJECT: Northway ADO TREF  
 REPORTS TO: Andrea Carlson / Mark Lockwood  
 EMAIL:  
 INVOICE TO: S&W  
 QUOTE #: 31-11472-001  
 JOB #:

SGS Reference #: \_\_\_\_\_ of \_\_\_\_\_

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/MATRIX CODE	# CONTAINERS		SAMPLE TYPE	Preservatives Used	Analysis Required	REMARKS/LOC ID
					C	G				
① A-D	1472-100709-001	10/7/09	11:45	GW	9		DRO	X	X	VOC (8260)
② A-B	1472-100709-002	10/7/09	12:00	GW	10		PAH	X	X	PAH
③ A-D	1472-100709-003	10/7/09	14:00	GW	10		GRO	X	X	GRO
④ A-I	1472-100709-004	10/7/09	14:15	GW	10		BTEX	X	X	BTEX
⑤ A-G	1472-100709-005	10/7/09	14:55	GW	8		UST METALS	X	X	UST METALS
⑥ A-H	1472-100809-006	10/8/09	11:15	GW	11			X	X	
⑦ A-I	1472-100809-007	10/8/09	10:45	GW	11			X	X	
⑧ A-E	1472-100809-008	10/8/09	13:10	GW	5			X	X	
⑨ A-C	TRIP BLANK							X	X	

4  
 DOD Project? YES NO  
 Cooler ID \_\_\_\_\_  
 Special Deliverable Requirements:  
 Requested Turnaround Time and/or Special Instructions:  
 PAH's short hold time collected 10/7  
 date 10/8. Limited volume for VOC/GRO for  
 samples -001 + -005.  
 Chain of Custody Seal: (Circle)  
 Samples Received Cold? YES NO  
 Cooler TB  
 Temperature C: 45 24  
 INTACT BROKEN ABSENT

5  
 Collected/Relinquished By: (1) Received By: 10/09/09  
 Relinquished By: (2) Received By: Carmon Beeve 10:55  
 Relinquished By: (3) Received By: 1500  
 Relinquished By: (4) Received By: 1100



SAMPLE RECEIPT FORM

SGS WO#:

Yes No NA

- Are samples **RUSH**, priority or *w/in 72 hrs of hold time*?
- If yes, have you done *e-mail ALERT notification*?
- Are samples *within 24 hrs. of hold time or due date*?
- If yes, have you also *spoken with supervisor*?
- Archiving bottles: Are lids marked w/ red "X"?
- Were samples collected with proper preservative?
- \*    **Any problems (ID, cond'n, HT, etc)? Explain:**

TAT (circle one): ~~Standard~~ -or- **rush**

Received Date: 10/09/09

Received Time: 1055

Cooler ID	Temperature	Measured w/ (Therm/IR ID#)
<u>1</u>	<u>C=4.1 TB=1.0C</u>	<u>FA2X71D</u>
<u>2</u>	<u>C=4.5 TB=1.2C</u>	<u>891D</u>
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

- Client  Alert Courier / Lynden / SGS
- UPS / FedEx / USPS / DHL / Carllie
- AkAir Goldstreak / NAC / ERA / PenAir

Other: \_\_\_\_\_

Additional Sample Remarks: (*✓ if applicable*)

- Extra Sample Volume?
- Limited Sample Volume?
- Multi-Incremental Samples?
- Lab-filtered for dissolved \_\_\_\_\_
- Ref Lab required for \_\_\_\_\_
- Foreign Soil?

**This section must be filled out for DoD projects (USACE, Navy, AFCEE):**

- | Yes                      | No                       |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Is received temperature $\leq 6^{\circ}\text{C}$ ?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i><br>If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected. |
| <input type="checkbox"/> | <input type="checkbox"/> | Was there an airbill? ( <i>If "yes," see attached.</i> )   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was cooler sealed with custody seals & were they intact?<br># / where: _____   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was there a COC with cooler?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was COC sealed in plastic bag & taped inside lid of cooler?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Was the COC filled out properly? Did labels correspond?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Did the COC indicate USACE / Navy / AFCEE project?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Samples were packed to prevent breakage with ( <i>circle one</i> ):<br>Bubble Wrap Vermiculite Other (specify): _____  |
| <input type="checkbox"/> | <input type="checkbox"/> | Were all samples sealed in separate plastic bags?  |
| <input type="checkbox"/> | <input type="checkbox"/> | Were all VOCs free of headspace and/or MeOH preserved?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Were correct container / sample sizes submitted?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?  |

**This section must be completed if problems are noted.**

Was client notified of problems? Yes / No

By (SGS PM): \_\_\_\_\_

Individual contacted: \_\_\_\_\_

Via: Phone / Fax / E-mail (*circle one*)

Date/Time: \_\_\_\_\_

Reason for contact: \_\_\_\_\_

Change Order Required? Yes / No

Notes:

\* limited sample volume for samples 1472-100709-001 and 1472-100709-005 - client is aware CRB 10/09/09

Completed by (sign): Cannon Beene (print): CANNON BEENE

Login proof: Self-check completed [signature] Peer-reviewer's Initials ala



1095963

SGS WI



**SAMPLE RECEIPT FORM FOR TRANSFERS**

From  
**FAIRBANKS, ALASKA**  
To  
**ANCHORAGE, AK**

**TO BE COMPLETED IN ANCHORAGE UPON ARRIVAL FROM FAIRBANKS.**

**NOTES RECORDED BELOW ARE ACTIONS NEEDED UPON ARRIVAL IN ANCHORAGE.**

Notes: SAMPLE ID 1472-100804-006, THREE VOA VILES  
RECEIVED BROKEN IN COOLER SAMPLE LOST.  
SAMPLE ID 1472-100804-005, ONE VOA VILE RECEIVED  
BROKEN IN COOLER, TWO MISSING. SAMPLE LOST  
SAMPLE ID 1472-100804-004, TWO VOA VILES MISSING SAMPLE LOST

Receipt Date / Time: 10-10-09 1100

Delivery method to Anchorage (circle all that apply):

Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlisle / Lynden / SGS

Other: \_\_\_\_\_

Airbill # \_\_\_\_\_

**COOLER AND TEMP BLANK READINGS\* 6**

Cooler ID	Temp Blank (°C)	Cooler (°C)	Cooler ID	Temp Blank (°C)	Cooler (°C)
<u>1</u>	<u>1.2</u>	<u>2</u>	_____	_____	_____
<u>2</u>	<u>1.0</u>	<u>2</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

CUSTODY SEALS INTACT: YES / NO  
# / WHERE: 2 FRONT & BACK TOP LID

COMPLETED BY: [Signature]

\*Temperature readings include thermometer correction factors.







