Blaine Mini Mart
Blaine, Washington

Site Characterization Report

FINAL

Prepared for



Washington State Department of Ecology
Toxics Cleanup Program
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List of Acronyms

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylene
Ecology	Washington State Department of Ecology
EPA	Environmental Protection Agency
GPR	ground penetrating radar
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MSL	mean sea level
MTBE	methyl tertiary-butyl ether
MTCA	Model Toxics Control Act
ORC	oxygen release compound
PCB	polychlorinated biphenyl
PID	photoionization detector
SAIC	Science Applications International Corporation
TOC	top of casing
TPH	total petroleum hydrocarbon
ULS	Underground Locating Service
UST	underground storage tank
VOC	volatile organic compound

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1.0 Introduction

The purpose of this site characterization was to investigate the nature and extent of petroleum hydrocarbons present in soil and groundwater. Additional data collection was necessary to facilitate the evaluation of future cleanup options at this active Shell-branded gas station. Tasks performed during this investigation were overseen by Science Applications International Corporation (SAIC) on behalf of the Washington State Department of Ecology (Ecology). This report has been developed in accordance with the substantive requirements stated in the Ecology Model Toxics Control Act (MTCA) Washington Administrative Code 173-340-350 (7).

2.0 Project Background

2.1 Site Description

The Blaine Mini Mart is an active gas station located at 2530 Peace Portal Drive, a rural community in Blaine, Washington (Figure 1). The Blaine property is a one-half acre triangular lot bounded by Peace Portal Drive on the southwest, Bell Road to the west, vacant land to the north, and an abandoned former Rocky Mountain Trading Post building to the east (Figure 2). The property is located within a commercial/residential area and is entirely covered with asphalt, concrete, or structures. Topographically, the site and surrounding area gently slope toward the southwest and Peace Portal Drive. Dakota Creek is located approximately 1,000 feet south of the property and discharges to Drayton Harbor of Puget Sound, roughly 1,500 feet southwest of the site (Environmental Associates, Inc. 2005).

2.2 Site History

Historic records indicate that the site was initially developed for residential purposes. Structures included one house and two additional unknown buildings. In 1955 the structures were removed and a 1,161-square foot convenience store, currently the Blaine Mini Mart, and a 1,120-square foot dual bay storage space (Environmental Associates, Inc. 2005), which initially housed the Blaine Mail and Package center (BEK 1997). Both buildings were constructed of concrete and include a concrete slab floor and flat roof. According to aerial photos (Appendix A), between 1961 and 1969 Interstate 5 was widened and a freeway on/off ramp was constructed south of the property, intersecting Peace Portal Drive. In 1980 four underground storage tanks (USTs) were removed from a tank basin in front of the current Mini Mart, where the current fuel dispenser canopy is located (Environmental Associates, Inc. 2005). The site owners, Yon and Inson Kim, purchased the property from Bell and Drake Enterprises in November 1997 (Whatcom 2010).

In 2005 a new fuel island canopy and four dispenser islands were constructed in the footprint of the previously existing dispenser canopy during a transition from Texaco to Shell branded gasoline (Environmental Associates, Inc. 2005). Ecology UST records indicate four USTs, ranging in size from 10,000 to 29,999 gallons and containing unleaded and leaded gasoline, were permanently closed in June 2007 (Ecology 2010). This site was previously identified as 1828 Peace Portal Drive, until the City of Blaine reassigned street addresses sometime after 2008 (Whatcom Environmental Services 2008). Currently, three 10,000-gallon USTs, located in a tank pit on the east central side of the property, store gasoline (regular and premium) and diesel fuel

(Northwest Tank 2010). Tank-tightness tests performed in January 2010 certified no leaks or concerns regarding three 10,000-gallon USTs (Northwest Tank 2010). According to the current property owner, Yon Kim, a former waste oil tank located on the east side of the mini mart was abandoned in-place and filled with sand and clay. Fresh asphalt indicates that the abandonment took place relatively recently; however, additional information was not available for review by SAIC.

2.3 Investigation History

Initial environmental investigations took place in October 1997. Three previously installed tank pit observations wells (OW-1, OW-2, and OW-3) were sampled on October 21, 1997. A slight sheen was observed during sample collection at OW-1; however, there is sufficient information to believe the sheen may have been from an unidentified surface spill. A truck-mounted drill rig was used to install two monitoring wells (MW-1 and MW-2) on the northwest and southeast side of the fuel dispenser canopy (Figure 2). Total boring depths extended to 10 feet below ground surface (bgs) and well screens extended from 5 to 10 feet bgs. Due to hydrocarbon odors, a soil sample was collected during installation of MW-2 at 10 feet bgs. Groundwater samples from MW-1 and MW-2 were collected on October 22, 1997. Analytical results indicated MW-2 groundwater exceeded MTCA Method A cleanup levels for gasoline-range total petroleum hydrocarbons (TPH), and benzene, toluene, ethylbenzene, and xylene (BTEX). Sample OW-1 contained concentrations of benzene and xylene over the MTCA Method A cleanup levels. No MTCA exceedences were identified in soil. Historical analytical results are presented in Appendix B. The extent of contamination associated with MW-2 was not further delineated because this was out of scope from the original investigation (BEK 1997).

In November 2005, a site characterization effort was conducted. Seven soil borings (B1-B7) were installed to final depths between 11 and 16 feet bgs. Groundwater was sampled at existing monitoring wells MW-1 and MW-2, and from a temporary well screen at B-1 (Figure 2). Laboratory analytical results for soil indicated concentrations of TPH, gasoline-associated benzene, and methyl tertiary-butyl ether (MTBE) exceeded MTCA Method A cleanup levels in B-4 at a depth of 5 feet bgs. In addition, benzene concentrations in soil collected from B-6 at depths of 4 and 8 feet bgs exceeded the Method A cleanup level. Soil samples collected at B-1, B-2, B-3, B-5, and B-7 did not exceed cleanup standards. Oily globules floating in the water column and a strong petroleum odor were observed at MW-2. Laboratory analysis indicated gasoline, diesel, and heavy-oil range TPH, as well as BTEX and MTBE significantly exceeded MTCA Method A cleanup levels at MW-2. Diesel-range and heavy-oil range TPH exceeded Method A cleanup levels in the groundwater sample collected at B-1 (Appendix B) (Environmental Associates, Inc. 2005).

Groundwater samples were again collected from MW-1 and MW-2 in May 2008. Laboratory analytical results did not detect any gasoline-related contamination at MW-1. However, gasoline-range TPH and BTEX were detected at concentrations exceeding MTCA Method A cleanup levels in the sample from MW-2 (Whatcom Environmental Services 2008).

3.0 Subsurface Conditions

3.1 Regional Geology

Regional geologic units consist primarily of Quaternary age deposits. Geologic units identified near the site include the Everson glaciomarine drift. Lithology ranges from well-sorted gravel, sand, silt, and clay to marine sediments (Natural Resources 2000). Based on boring logs, site-specific geology appears consistent with the regional geology with additional fill material.

3.2 Soil Conditions

Figure 3 shows the location of the geologic cross sections across the site, and Figures 4 and 5 present the detailed cross sections from northwest to southeast, and northeast to southwest, respectively. The maximum explored depth during the March 2010 site investigation was 19 feet bgs. Subsurface conditions in the vicinity of the dispenser islands include thick fill material. Cobbles are present on the south portion of the property creating difficult drilling conditions and even refusal at several attempted borings. Soil includes fine to medium sand underlain by gray to dark brown silt, and stiff clayey material. Clay and silty sand appears to be interstratified or to exist as discontinuous lenses.

3.3 Hydrogeology

Groundwater level measurements, collected at MW-1 through MW-5 in March 2010, ranged from 2.16 to 3.85 feet below the top of the PVC well casing. Groundwater was again measured in June 2010 and ranged from 1.14 to 3.85 below casing. Groundwater flow direction across the site, during spring and summer months, appears to be in a southwest to south direction, toward Peace Portal Drive. The hydrologic gradient is much steeper (0.041 ft/ft) during June 2010 than during March 2010 (0.028 ft/ft) (Figures 6 and 7).

4.0 Project Methodology

Prior to the field investigation, SAIC reviewed available reports to select boring locations based on data gaps. The project work plan proposed general guidelines for placement and installation of soil borings at the site. Placement of the soil borings was determined based on proximity to former or current petroleum-related features of the site, such as UST basin(s) or product piping. Additional locations were added based on field observations during the site investigation in an effort to close data gaps. Criteria included soil and water characteristics observed during sample collection, such as petroleum odor, sheen, or photoionization detector (PID) readings. The presence of onsite utilities also required adjustments to pre-planned boring locations.

4.1 Soil Borings

In an attempt to more thoroughly evaluate vertical and horizontal delineation of hydrocarbon-impacted soil, 20 soil borings (SB-08 through SB-28) were completed during the site characterization activities conducted between March 8 and March 12, 2010 (Figure 3). Soil boring and groundwater monitoring well locations were determined after review of available

historical analytical data and from onsite observations made during field screening and sample collection.

4.1.1 Boring Installation and Soil Sample Collection

ULS Services, a private underground utility locator service company, marked all detected underground utility structures and features at the site. These included piping, conduit, wires, tanks, and other buried features in the immediate vicinity of the proposed soil borings. Ground penetrating radar anomalies were located south of the storage garage.

Prior to the use of any powered drilling equipment, field personnel cleared each boring using a 3.25-inch outside diameter, stainless steel hand-auger or an air-knife vacuum rig, to a depth of 5 feet bgs. Soil borings were advanced below 5 feet bgs using a direct-push geo-probe drilling rig. Soil samples were collected continuously inside a 2.25-inch outside diameter, 4-foot long, plastic macrocore. All soil borings were advanced beyond the water table, when visible, to a depth where observed contamination was no longer present or until drilling reached refusal. Most soil borings were advanced to a depth of 16 feet bgs; boring SB-5 was advanced to a depth of 19 feet bgs. Boring logs are included as Appendix C. Physical soil properties were recorded on boring logs along with field screening results of total volatile organic compounds (VOCs) using an RAE2000 photo-ionization detector (PID). Soil used for field screening was not used for laboratory analyses. Based on the field screening, soil samples were selected for chemical analysis and placed into appropriate containers (i.e., glass jars or vials) provided by the analytical laboratory. Sample containers were sealed, labeled, and chilled to a preservation temperature of approximately 4ºC until received by the analytical laboratory. A minimum of two soil samples were collected at different depths from each boring location for laboratory analysis. Additional samples were collected and analyzed if fuel odors were present, the soil had a moderate to strong sheen, or PID readings suggested the presence of VOCs.

4.1.2 Soil Chemical Analyses

Fifty-nine soil samples were collected for chemical analysis (Table 1). All soil samples were shipped or delivered under proper chain-of-custody procedures to Analytical Resources, Incorporated (ARI), Tukwila, Washington, an Ecology-certified laboratory. Chain-of-custody forms are included with the laboratory reports (Appendix D).

All soil samples collected during March 2010 field activities were analyzed for the following parameters (Tables 1 and 2).

- NWTPH-Gx (North West Total Petroleum Hydrocarbon (NWTPH)-Gx),
- NWTPH-Dx and Heavy Oil (NWTPH-Dx with silica gel cleanup), and
- BTEX and MTBE (Environmental Protection Agency (EPA) Method SW 8260C).

In an effort to thoroughly evaluate potential contamination distribution across the site and to assess waste disposal requirements, lead analyses (EPA Method 6010B) were performed on 12 samples.

Historical documentation indicated that a previous site configuration possibly included a waste oil UST in the vicinity of the storage garage where SB-12 was collected. In addition to the

analysis listed above, polychlorinated biphenyl (PCB) Aroclors analysis (EPA Method SW8082) was performed.

4.2 Groundwater Monitoring Wells

4.2.1 Monitoring Well Installation and Development

Three groundwater monitoring wells (MW-3 through MW-5) were installed during the March 2010 site investigation (Figure 3). During drilling, groundwater was encountered at depths ranging from 3.5 to 5 feet bgs. Groundwater was not observed in every boring. Monitoring wells were constructed of 2-inch diameter, Schedule 40 PVC casing and screened with 10 feet of pre-packed 0.010-inch slotted well screen from 3 to 13 feet bgs. The pre-packed well screen included 10/20 silica sand and the annular spaces around the well screens filled with #2/12 Monterey sand. Hydrated bentonite chips were placed above the sand as an annular sealant. The monitoring wells were finished with a concrete surface seal and flush-grade steel well monuments. The wellhead covers have watertight and expanding seals to protect the wells against surface-water infiltration. The well construction diagrams are shown on the boring logs in Appendix C.

Following construction, the monitoring wells were developed by removing 7 to 18 gallons of water from each well, including MW-1 and MW-2, which were redeveloped. Water was pumped to the surface using an electrically operated peristaltic pump. All tubing and down hole sampling equipment was disposable and replaced between each use. In most cases, the groundwater removed from the wells showed a marked decrease in turbidity as the development process was nearing completion. Wells MW-1, MW-3, and MW-4 dewatered and became dry at least twice during development.

4.2.2 Groundwater Chemical Analyses

Groundwater samples were collected from five onsite monitoring wells (Table 3). All groundwater samples were transported under proper chain-of-custody procedures to ARI. Chain-of-custody forms are included with the laboratory reports (Appendix D).

All groundwater samples collected during March 2010 field activities were analyzed for the following parameters (Tables 3 and 4).

- NWTPH-Gx (NWTPH-Gx),
- NWTPH-Dx and Heavy Oil (NWTPH-Gx with silica gel cleanup),
- BTEX and MTBE (EPA Method 8260C),
- Carcinogenic PAHs (EPA Method 8270D),
- EDB/EDC (EPA Method 8260C), and
- Total and dissolved lead (Method 6010B).

4.2.3 Well Elevation Survey

On February 23, 2010, Ayers Consulting, a Washington State licensed land surveying company, established the top of casing (TOC) elevations for wells MW-1 and MW-2, located property boundaries, building corners, dispenser island canopy corners, and OW well locations. Each well was surveyed from the north side of each well casing. TOC elevations were surveyed relative to

mean sea level (MSL). Groundwater elevations were determined by measuring the depth to water relative to the TOC in each well and subtracting the depth to water from the well elevation (Table 5). Ayers continued collecting additional survey data for monitoring wells MW-3 through MW-5 and soil borings SB-8 through SB-28 on March 17, 2010. A survey map is provided in Appendix E.

4.3 Decontamination Procedures

All re-usable soil sampling equipment such as hand augers and sample collection bowls were decontaminated by an initial rinse in tap water, followed by a rinse in a Liquinox™ and de-ionized water solution, and a final rinse in de-ionized water immediately after the collection and screening of each sample. The well development pumps and water-level probe were decontaminated between each use. Steel drilling rods and augers were decontaminated by pressure washing between each sampling location. All other soil and groundwater sampling equipment, such as macrocore liners, gloves, plastic bags, and groundwater sample tubing, was of a disposable, single-use material.

4.4 Quality Control Samples

Laboratory-provided trip blanks were utilized for quality control during this investigation. ARI supplied trip blanks to accompany the samples as they were collected and transported to the laboratory for analysis. Equipment rinseate samples were collected to assess the effectiveness of equipment decontamination and to confirm that no significant sample cross-contamination was occurring during soil sample collection efforts a field blank was also collected. A duplicate groundwater sample was collected at MW-5 to assess the overall variability in the sampled water matrix. Quality control laboratory analyses are included in Table 4. No analytes were detected, except in sample ER-031110-1, where naphthalene was identified below the MTCA Method A cleanup level.

5.0 Summary of Analytical Results

5.1 Soil Samples

Analyses of soil samples collected during the March 2010 investigation showed concentrations of petroleum constituents, including benzene, MTBE, TPH-Gas, and TPH-Heavy Oil, above the MTCA Method A cleanup levels at depths ranging from 3 to 19 feet bgs on the east, south, and north sides of the current dispenser islands (Figure 8 and Table 2). Shallow contamination, including TPH-G and TPH-O exceeding MTCA Method A cleanup levels is located on the south side of the storage garage at depths of 2 feet or less. Analytical results show concentrations exceeding MTCA Method A cleanup levels in the following concentrations:

- TPH-Gas concentrations ranged from 60 to 52,000 milligrams per kilogram (mg/kg) in 12 soil borings. 12.
- TPH-Heavy Oil concentrations ranged from 7,300 to 20,000 mg/kg in two borings.
- Benzene concentrations ranged from 0.039 to 290 mg/kg in ten borings.

- Toluene concentrations ranged from 9.7 to 1,700 mg/kg in seven borings.
- Ethylbenzene concentrations ranged from 11 to 600 mg/kg, m,p-xylenes concentrations ranged from 18 to 2,600 mg/kg, o-xylenes concentrations ranged from 15 to 910 mg/kg in six borings.

All other detections of petroleum constituents were below the MTCA Method A cleanup levels. Lead and PCBs were detected below the MTCA Method A cleanup levels in all samples analyzed. The laboratory analytical reports are included as Appendix D.

5.2 Groundwater Samples

Analyses of groundwater samples collected during the March 2010 investigation showed concentrations of 1,2-dichloroethane, benzene, toluene, ethylbenzene, m,p-xylene, o-xylene, MTBE, TPH-Gas, and TPH-Heavy Oil, above the MTCA Method A cleanup levels in MW-1 through MW-4 (Figure 9 and Table 4). Groundwater samples with concentrations exceeding the MTCA Method A cleanup levels included the following:

- 1,2-dichloroethane in MW-1 concentrations of 10 micrograms per liter (μg/L).
- BTEX concentrations in MW-2 and MW-4 were reported for benzene at 22,000 and 2,800 μg/L, toluene at 18,000 and 1,800 μg/L, ethylbenzene at 2,400 (MW-2), m,p-xylene at 10,000 and 2,900 μg/L, and o-xylene at 3,500 and 970 μg/L, respectively.
- Benzene concentrations in MW-3 were reported at 6.3 μg/L.
- MTBE concentrations ranged from 39 to 3,900 μg/L in MW-2 through MW-4.
- TPH-Gas was detected in MW-4 at a concentration of 28,000 μg/L.
- TPH-Diesel in MW-2 at a concentration of 750 μg/L.

Analytes detected in groundwater samples collected from MW-5, located on the northeast side of the current dispenser island, were below regulatory cleanup levels. All other detections were below the MTCA Method A cleanup levels. Laboratory analytical reports are included as Appendix D.

6.0 Summary

The intent of this site characterization report is to present data that have been collected to date. MTCA Method A cleanup levels were used as conservative screening levels to identify potential chemicals of concern at the site and evaluate the nature and extent of petroleum constituents in soil and groundwater. Under MTCA, selection of appropriate cleanup standards requires analysis of exposure pathways.

6.1 Distribution of Petroleum Constituents in Soil

Historical records indicate concentrations of petroleum constituents were present at levels exceeding MTCA Method A cleanup levels surrounding the current dispenser island, excluding the northeast side. Soil borings advanced during the March 2010 investigation were sampled to further delineate areas of contamination and resolve data gaps. Cross section diagrams provide a

visual understanding of the extent and depth of soil contamination across the site in relation to lithology and subsurface utilities (Figures 10, 11, 12).

The area northwest of the dispenser islands constitutes a significant source of petroleum hydrocarbons in the subsurface soil, which extends to about 20 feet bgs. Site-wide boring analytical results indicate the highest MTCA Method A exceedances are present in soil sample SB-18-5 for all BTEX and gasoline range analytes at a depth of 5 to 19feet bgs. Results for nearby soil sample SB-22 also show significant exceedences of MTCA Method A for BTEX and TPH-gas at 5 to 15 feet bgs. Method A exceedences for sample SB-19 range from 5 to 16 feet bgs. Altogether, MTCA Method A exceedances of petroleum constituents in this area are present at known depths ranging from 5 to 19 feet bgs (Figure 12). Contamination likely extend to depths greater than 19 feet bgs; however, due to sampler penetration refusal, the full vertical extent of contamination at this boring could not be established. Concentrations may suggest a subsurface source of contamination associated with a historical dispenser island, located on the northwest side of the current dispenser island, and/or possible gasoline piping-related leaks.

In an effort to evaluate the possible extent of offsite contamination, several soil borings were installed along the southwestern property boundary, adjacent to Peace Portal Drive. Soil samples SB-17-5, SB-23-4, and MW-4-3 all contained levels of gasoline-related contamination exceeding MTCA Method A cleanup levels. The second highest site-wide concentrations of BTEX and TPH-Gas (with the exception of toluene) are present in sample SB-23 at a depth of 4 feet bgs. These borings are located downgradient from a historical UST basin, previously located under the current dispenser island. Contamination could be present from historical UST leaks or spills and be transported via groundwater flow toward the southwestern property line. Additionally, an adjacent utility corridor runs the length of the southwestern property paralleling Peace Portal Drive. Unconsolidated utility backfill material may create preferential migration pathway that could serve to transport contamination from the former fuel dispenser island, northwest of the current dispenser island, southward along the property boundary. The distribution and estimated extent of benzene, gasoline, and heavy oil-range hydrocarbon concentrations are shown in Figure 8.

Nine soil borings were installed around the south and west sides of the storage garage, located in the northeast corner of the property. Historical data indicated gasoline constituents exceeded MTCA Method A cleanup levels in a groundwater grab sample collected during the installation of boring B1. Soil samples from borings SB-12, SB-15A, and SB-15B contained levels of TPH-gas and TPH-oil exceeding MTCA Method A at shallow depths of 1 to 2 feet bgs (Figure 8). Contamination in this vicinity is believed to be present from petroleum surface spills during an unknown activity.

6.2 Distribution of Petroleum Constituents in Groundwater

Based on a review of water-level data from historic reports and March to June 2010 investigation activities, depth to groundwater ranges from 1.14 to 4.44 feet below well casing (Table 5). Groundwater flows to the south and southwest and appears to have little seasonal variation, except at MW-5, between the spring and summer months (Figures 6 and 7).

Groundwater contamination is present under a portion of the current dispenser island and appears to extend to the south and off-property. Historical groundwater analytical results at well MW-2

indicate BTEX, TPH-gas, TPH-diesel, and TPH-oil levels have exceeded MTCA Method A cleanup levels since the well was installed in 1997. Groundwater contamination could be a result of the high soil contamination concentrations in the same vicinity as the historical dispenser island (upgradient of MW-2). Recent data indicate levels of gasoline-related constituents in MW-2 have decreased, likely an effect of natural attenuation. However, BTEX, TPH-gas, and TPH-diesel continue to be present at high levels exceeding MTCA Method A cleanup standards.

Concentrations of BTEX, TPH-gas, and TPH-diesel also exceed MTCA Method A cleanup standards in well MW-4, on the south side of the current dispenser island. Groundwater contamination may be a result of the former UST basin located up under the current dispenser island, upgradient of MW-4.

Analytical results collected during the March 2010 site investigation indicate MTCA Method A cleanup levels in well MW-1 and MW-3 were not exceeded, except for 1,2dichloroethane and MTBE, respectively. Well MW-5 is located upgradient of the current dispenser island and did not exceed MTCA Method A cleanup levels for any analyte.

7.0 Conclusions and Recommendations

Surface contamination in the area around the storage garage can be addressed by excavating approximately 58 cubic yards of soil (Figure 12). A private utility locator company indicated anomalous GPR readings in the vicinity of the storage garage but could not conclusively identify the type or extent of potential underground utilities. A subsurface pipe was encountered during installation of SB-15A at approximately 1.5 feet bgs, causing the boring to be abandoned. Additional piping could be present in this area, which could require proper inerting and abandonment procedures during excavation activities.

Major contamination in the vicinity of the current dispenser islands and along the southern property boundary could also be removed by excavation. The current dispenser islands and canopy would need to be removed, and underground piping and utilities associated with the dispenser island would need to be removed or properly abandoned. Approximately 2,600 cubic yards of soil would need to be removed (Figure 12). Excavation depths would range from approximately 20 feet bgs near the northwest side of the dispenser island to a maximum of approximately 10 feet bgs along the property boundary to the south. Excavation activities would be limited to onsite soil removal only. Due to high concentrations of onsite gasoline constituents, contamination is believed to extend to the south or southwest, under Peace Portal Drive. The use of an oxygen release compound (ORC) could be applied in the excavation to promote future microbial activity and assist in the reduction of contamination concentrations downgradient and off-property. ORC would be applied to the bottom of the excavation prior to backfilling with clean material. A larger quantity of ORC could be applied along the southwest sidewall for treatment of off-property downgradient contamination.

8.0 References

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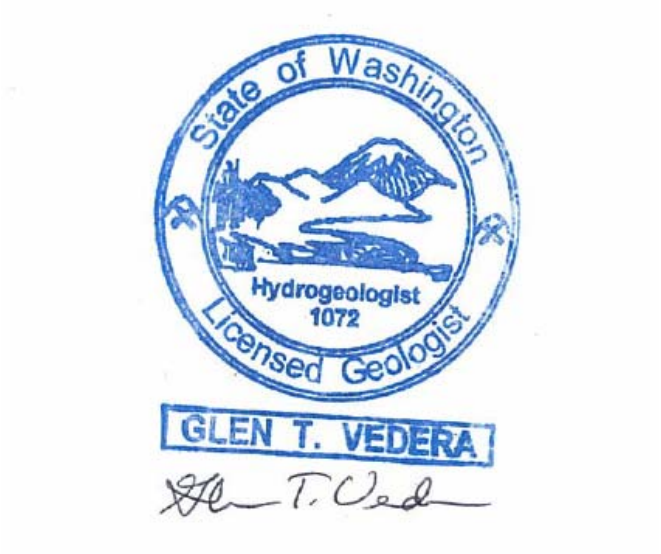
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LIMITATIONS

As part of this report, SAIC's investigation was restricted to collection and analyses of a limited number of environmental samples, visual observations and field data, in addition to summarizing available information from previous site documents. Because the current investigation consisted of evaluating a limited supply of information, SAIC may not have identified all potential items of concern. This report is intended to be used in its entirety; taking or using excerpts from this report is discouraged.

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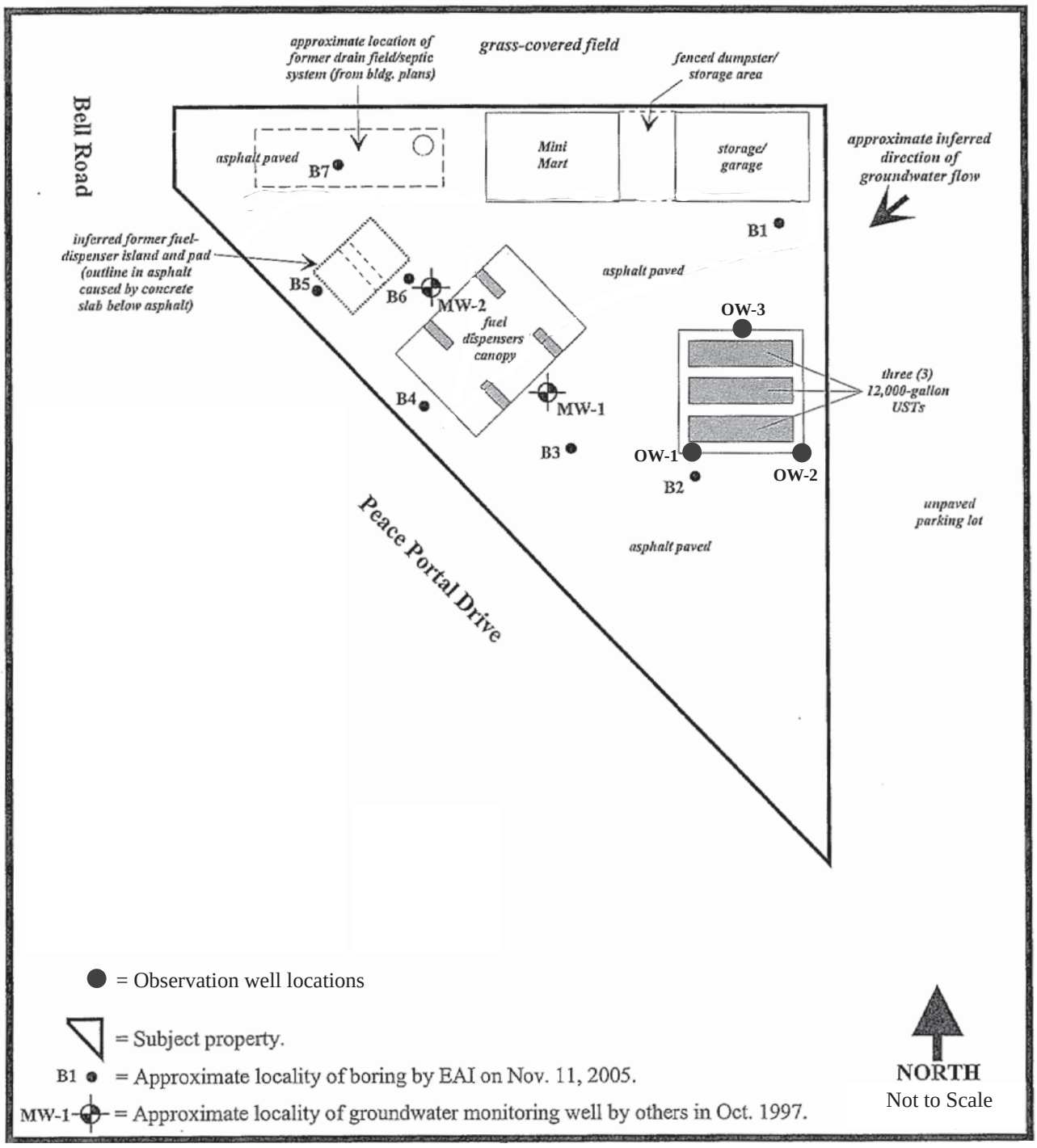
Figures



SAIC® From Science to Solutions

Figure 1. Location Map for the Blaine Mini Mart Site

DEPARTMENT OF ECOLOGY State of Washington



Source: Environmental Associates 2005

Figure 2. Historical Site Investigation Map

EXISTING POWER POLE

EXISTING WOOD FENCE

A

EXISTING CURB

EXISTING PLANTER AND SIGN

FOOD MART

CEMENT BLOCK BUILDING

B

B7

SB-25

SB-22

SB-24

SB-08

SB-09

SB-10

SB-15B

SB-12

B1

SB-14

SB-15A

SB-11

SB-13

Former Canopy

SB-18

B6

MW-2

MW-5

B5

SB-19

MW-3

FUEL DISPENSER CANOPY

OW-3

UNDERGROUND TANK AREA

SB-20

B4

SB-17

MW-1

SB-16

OW-1

OW-2

MW-4

B2

SB-28

B3

B'

SB-21

SB-23

EXISTING CONCRETE ECOLOGY BLOCKS

SB-27

A'

SB-26

Peace Portal Drive

N

0 20'

LEGEND

B2	2005 Boring Locations
SB-21	2010 Boring Locations
MW-1	Groundwater Monitoring Well Locations
A — A'	Geologic Cross Section Profiles

Utilities

	Product Line
	Electric
SD	Stormwater
GAS	Natural Gas
	Water Line
	Historic Product Left in Place
	Historical Water Left in Place

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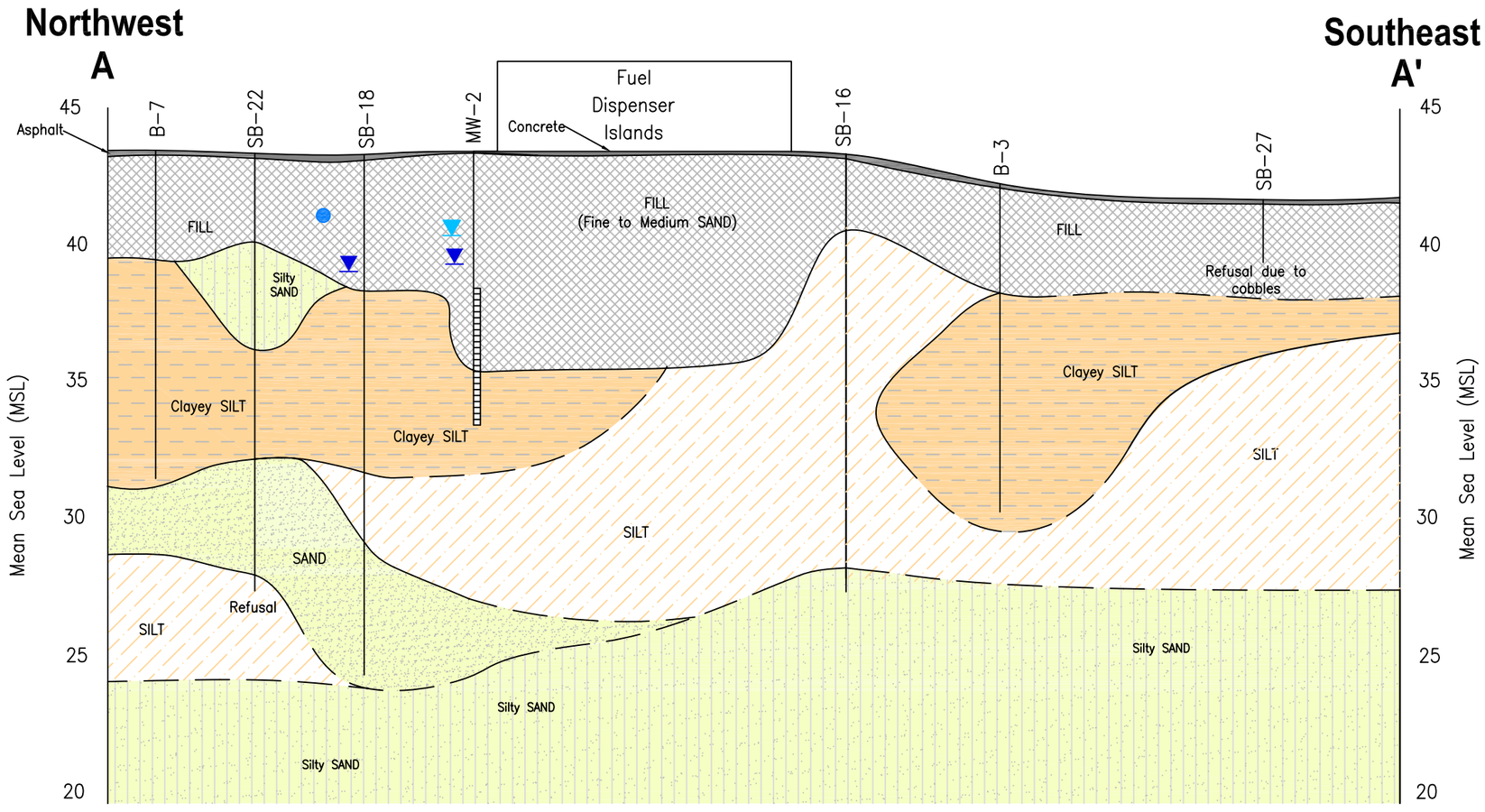
Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 3

Geologic Cross Section Profile Lines and Site Utilities

DATE: 07/08/10

DRAWING: Blaine_Profile.dwg



LEGEND:

SOIL CLASSIFICATION LEGEND

Concrete or Asphalt: Concrete slab under current dispenser islands and canopy, current property asphalt paved.

Fill: Brown to gray, re-worked native soil, gravelly fine to medium sand.

Everson Glaciomarine Drift Units:

Clayey SILT: Brown to gray, stiff to hard SILT to clayey SILT, low plasticity.

Silt: Light gray SILT, 10% to 20% fine to medium sand, 0% to 20% coarse gravel, may contain <5% shell fragments, soft to stiff.

Sand Rich-Silt: Brown to gray SILT with SAND or silty SAND. 20% fine to medium sand, 10% medium to coarse gravel, soft.

Sand: Gray to brown medium to coarse SAND. May contain 5% to 10% silt and 5% to 10% angular gravel.

LEGEND:

Boring

Screened Interval

Highest Recorded Groundwater Elevation

Groundwater Elevation Recorded During Drilling or Lowest Recorded Groundwater Elevation

SUBSURFACE UTILITIES:

Water Line

0 10
Feet
Horizontal Scale 1" = 20'
Vertical Exaggeration 4:1 (1"= 5')

07/08/2010 Drawn By AJW
Path: Bothell168-2k(Z:/Ecology/Blaine Mini Mart\Working\Geologic x-sec.dwg

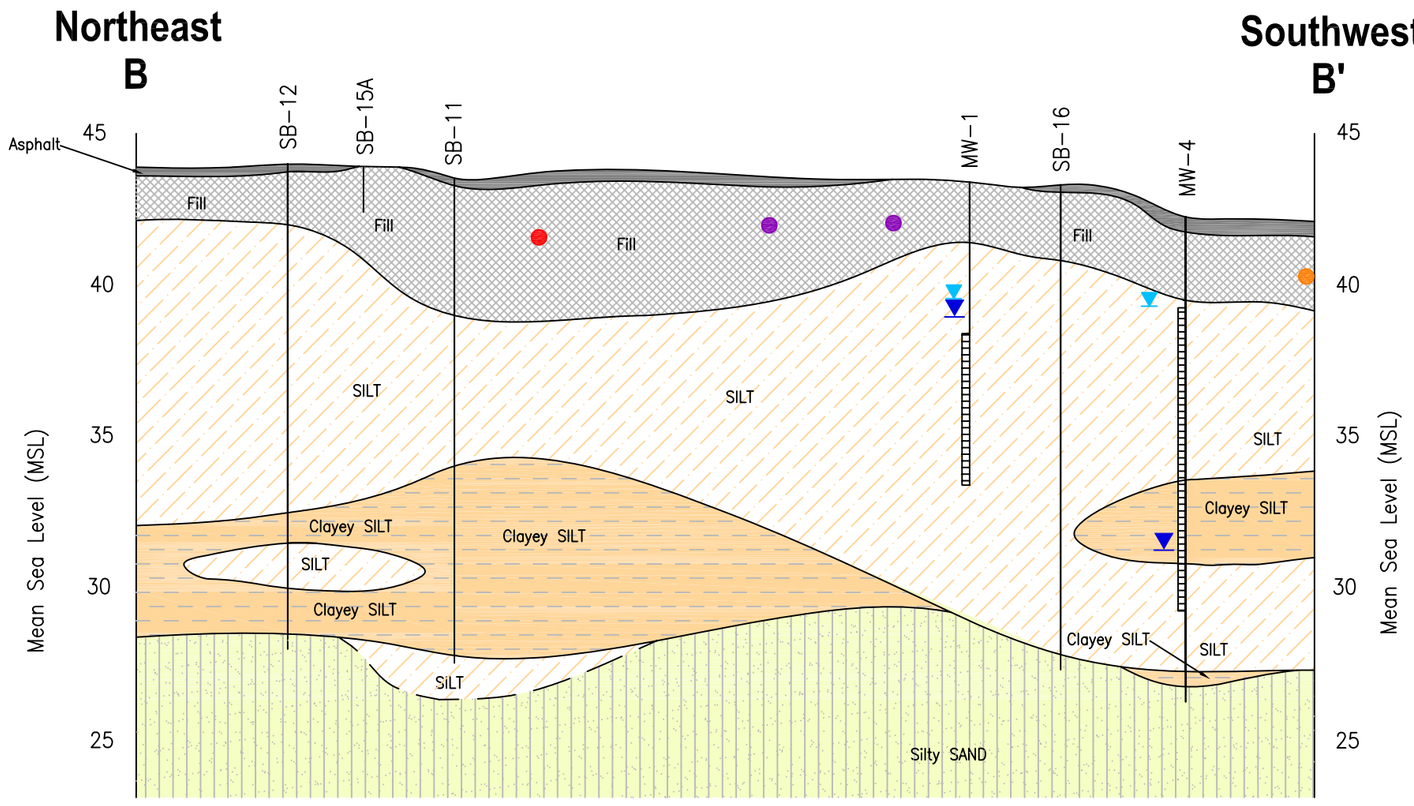
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Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 4
Geologic Cross Section A-A'

DATE: 07/08/2010 | DRAWING:Geologic x-sec.dwg



LEGEND:

SOIL CLASSIFICATION LEGEND

Concrete or Asphalt: Concrete slab under current dispenser islands and canopy, current property asphalt paved.

Fill: Brown to gray, re-worked native soil, gravelly fine to medium sand.

Everson Glaciomarine Drift Units:

Clayey Silt: Brown to gray, stiff to hard clayey SILT to SILT, low to medium plasticity.

Silt: Light gray SILT, 5% to 20% fine to medium sand, 0% to 20% coarse gravel, may contain <5% shell fragments, soft to stiff.

Sand Rich-Silt: Brown to gray SILT with SAND or silty SAND. 20% fine to medium sand, 5% to 10% medium to coarse gravel, soft.

LEGEND:

- Boring
- Screened Interval
- Highest Recorded Groundwater Elevation
- Groundwater Elevation Recorded During Drilling or Lowest Recorded Groundwater Elevation

SUBSURFACE UTILITIES:

- Electric Line
- Natural Gas Line
- Product Line

0 10 20
Feet
Horizontal Scale 1" = 20'
Vertical Exaggeration 4:1 (1"= 5')

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Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 5
Geologic Cross Section B-B'

DATE: 07/08/2010 | DRAWING: Geologic x-sec.dwg

07/08/10
Drawn By AJW
Path: Bothell168-2k(Z:/Ecology/Blaine Mini Mart\Working\x-sect.dwg

EXISTING CHAIN LINK FENCE

EXISTING POWER POLE

EXISTING WOOD FENCE

EXISTING CURB

EXISTING PLANTER AND SIGN

FOOD MART

STORAGE GARAGE

N

0' 10' 20'

MW-5 41.01

MW-2 40.46

MW-3 39.42

FUEL DISPENSER CANOPY

41.00

40.50

40.00

MW-1 39.55

39.50

MW-4 39.30

39.00

Peace Portal Drive

OW-3

UNDERGROUND TANK AREA

OW-1

OW-2

EXISTING CONCRETE ECOLOGY BLOCKS

LEGEND

MW-1 Monitoring Well Locations

41.01 Groundwater Elevation in Feet (Mean Seal Level)

Perched Groundwater Table Contour (Dashed Where Inferred)

Approximate Direction of Groundwater flow

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Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 6
Groundwater Elevation Contour Map
March 17, 2010

DATE: 06/07/10

DRAWING: Blaine_GW_ajw_060410.dwg

EXISTING CHAIN LINK FENCE

EXISTING POWER POLE

EXISTING WOOD FENCE

EXISTING CURB

EXISTING PLANTER AND SIGN

FOOD MART

STORAGE GARAGE

N

0' 10' 20'

MW-5 42.03

MW-2 40.02

MW-3 39.08

FUEL DISPENSER CANOPY

42.00

41.50

41.00

40.50

40.00

MW-1 39.55

39.50

MW-4 38.82

39.00

38.50

Peace Portal Drive

OW-3

UNDERGROUND TANK AREA

OW-1

OW-2

EXISTING CONCRETE ECOLOGY BLOCKS

LEGEND

MW-1 Monitoring Well Locations

42.03 Groundwater Elevation in Feet (Mean Seal Level)

Perched Groundwater Table Contour (Dashed Where Inferred)

Approximate Direction of Groundwater flow

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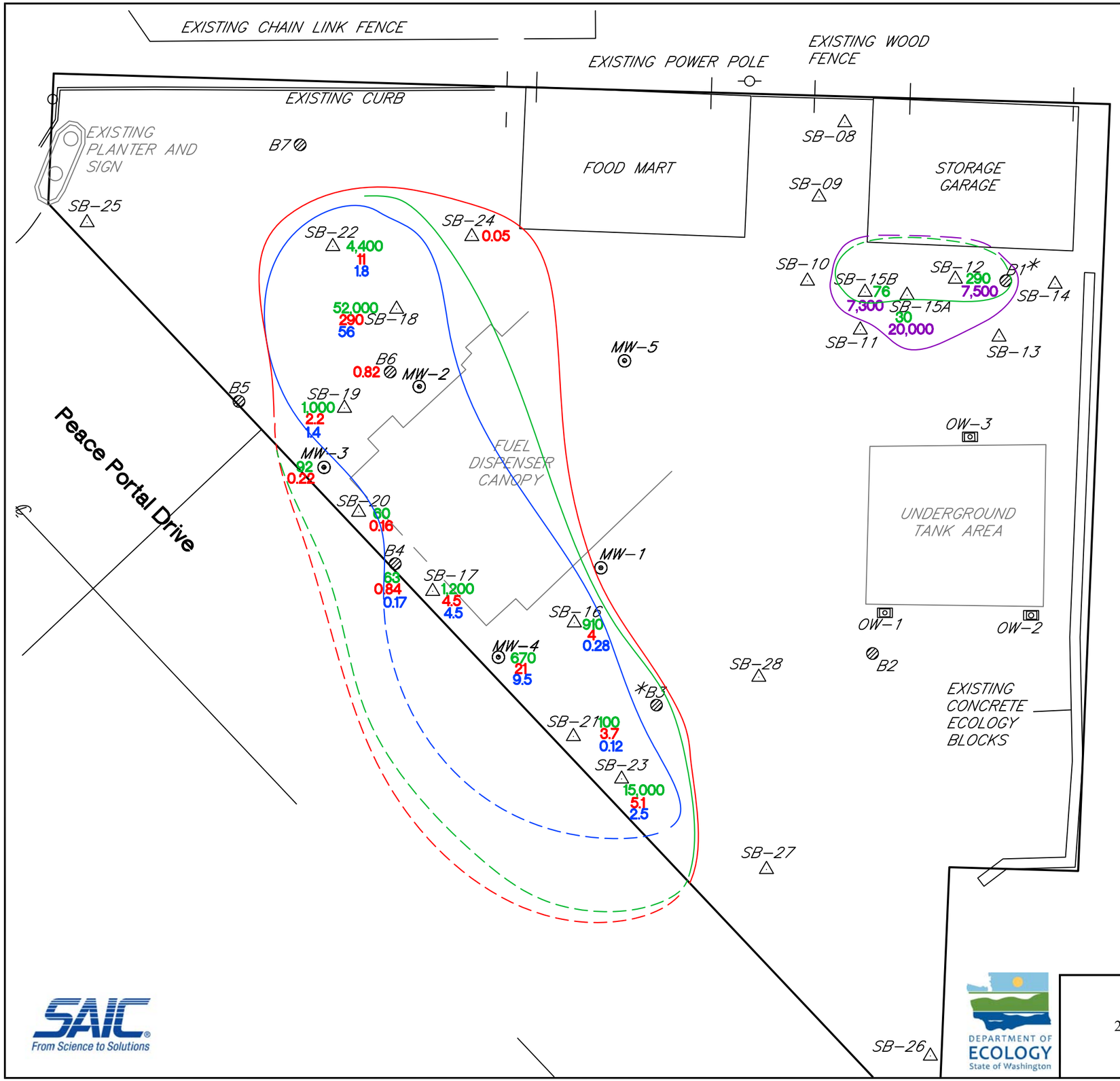
Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 7

Groundwater Elevation Contour Map
June 22, 2010

DATE: 06/23/10

DRAWING: Blaine_GW_ajw_060410.dwg



LEGEND

⊘ B2	2005 Boring Locations
△ SB-21	2010 Boring Locations
⊙ MW-1	Groundwater Monitoring Well Locations
———	Extent of Gasoline-Range Hydrocarbon Concentrations Exceeding MTCA Method A Cleanup Levels (CULs) in Soil. Dashed Where Inferred.
———	Extent of Benzene Concentrations Exceeding MTCA Method A CULs in Soil. Dashed Where Inferred.
———	Extent of Methyl Tert-Butyl Ether (MTBE) Concentrations Exceeding MTCA Method A CULs in Soil. Dashed Where Inferred.
———	Extent of Heavy Oil-Range Hydrocarbon Concentrations Exceeding MTCA Method A CULs in Soil. Dashed Where Inferred.
100	Maximum Concentration of Gasoline-Range Hydrocarbons (Exceeding MTCA Method A CULs)
290	Maximum Concentrations of Benzene (Exceeding MTCA Method A CULs)
56	Maximum Concentrations of MTBE (Exceeding MTCA Method A CULs)
20,000	Maximum Concentration of Heavy Oil-Range Hydrocarbons (Exceeding MTCA Method A CULs)
mg/kg	All Constituents Measured in milligrams per kilograms

* Contamination at B-1 and B-3 are interpreted from boring logs.

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Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 8

Soil Concentrations of Gasoline- and Heavy Oil-Range Hydrocarbons, Benzene and MTBE Exceeding MTCA Method A Cleanup Levels

DATE: 06/08/10 | DRAWING: Blaine_Site Map 060810.dwg

EXISTING CHAIN LINK FENCE

EXISTING POWER POLE

EXISTING WOOD FENCE

EXISTING CURB

EXISTING PLANTER AND SIGN

FOOD MART

STORAGE GARAGE

MW-5

MW-2
750
22,000
3,900

MW-3
6.3
39

FUEL DISPENSER CANOPY

MW-1

OW-3

UNDERGROUND TANK AREA

OW-1

OW-2

MW-4
28,000
2,800
89

EXISTING CONCRETE ECOLOGY BLOCKS

Peace Portal Drive

LEGEND

⊙ MW-1	Monitoring Well Locations
———	Extent of Dissolved Phase Hydrocarbons (Exceeding MTCA Method A Cleanup Levels (CULs)). Dashed Where Inferred.
(µg/L)	micrograms/Liter
28,000	Gasoline-Range Hydrocarbons Exceeding MTCA Method A CULs (µg/L)
750	Diesel-Range Hydrocarbons Exceeding MTCA Method A CULs (µg/L)
2,800	Benzene Concentrations Exceeding MTCA Method A CULs (µg/L)
89	Methyl Tert-Butyl Ether (MTBE) Exceeding MTCA Method A CULs (µg/L)

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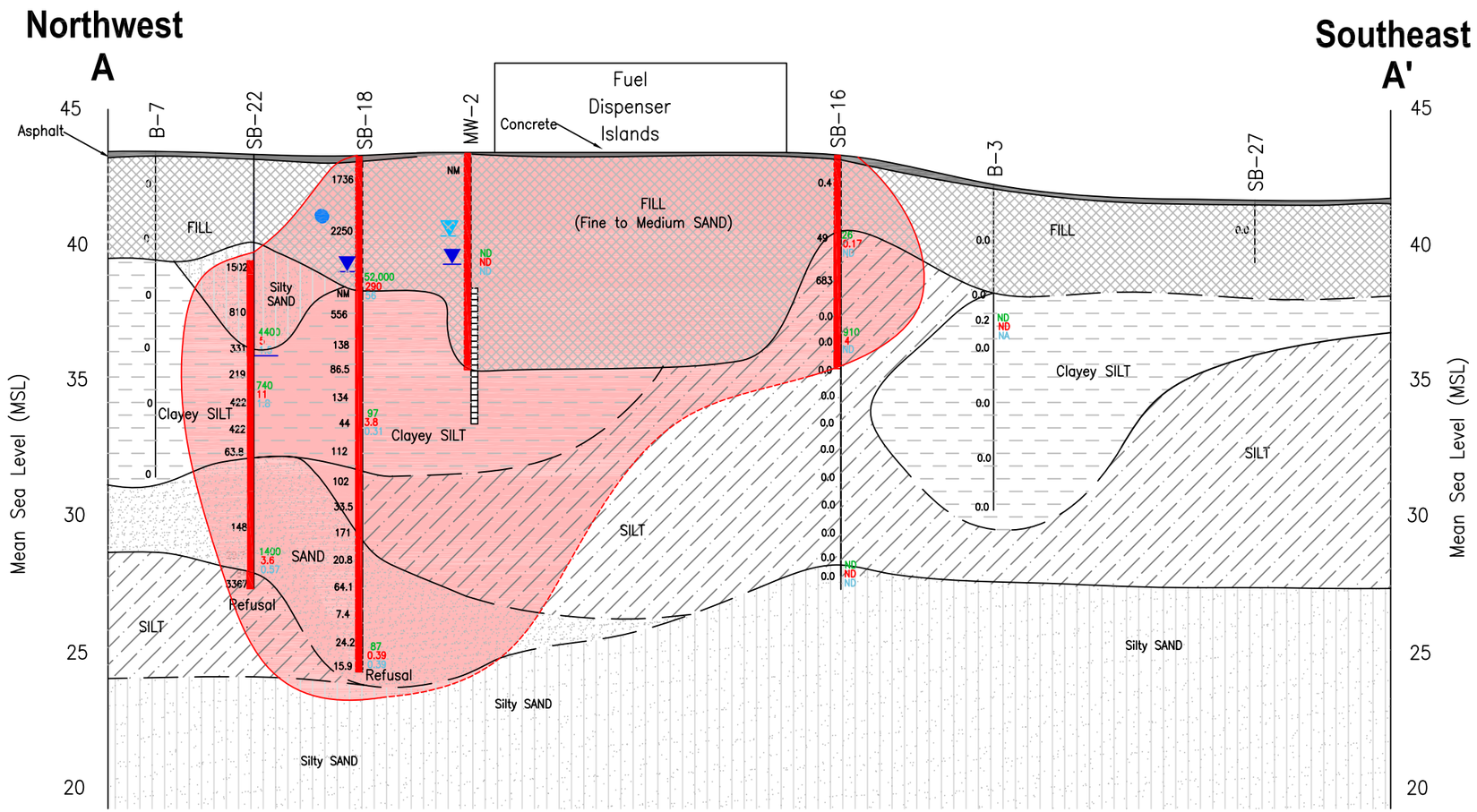
Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 9

Groundwater Concentrations Exceeding MTCA Method A Cleanup Levels - March 2010

DATE: 06/07/10

DRAWING: Blaine_GW_ajw_060410.dwg



LEGEND:

- Boring
- Screened Interval
- Highest Recorderd Groundwater Elevation
- Groundwater Elevation Recorded During Drilling or Lowest Recorded Groundwater Elevation.
- Estimated Extent of Soil Contaminants Exceeding MTCA Method A CULs for Petroleum
- Approximate Area with Any Contaminants Exceeding MTCA Method A Soil CULs (Dashed Where Inferred)
- Contact Line Between Soil Types
- (mg/kg) Concentrations in Soil Measured in milligrams per kilograms
- 87 Gasoline-Range Hydrocarbons
- 390 Benzene
- 0.39 Methyl Tert-Butyl Ether
- ND Not Detected at or above Laboratory Detection Limits
- NA Not Analyzed
- 556 Photo-ionization Detection, Measured in parts per million (ppm)
- NM Not Measured

SUBSURFACE UTILITIES:

- Water Line

0 10 20
Feet
Horizontal Scale 1" = 20'
Vertical Exaggeration 4:1 (1"= 5')

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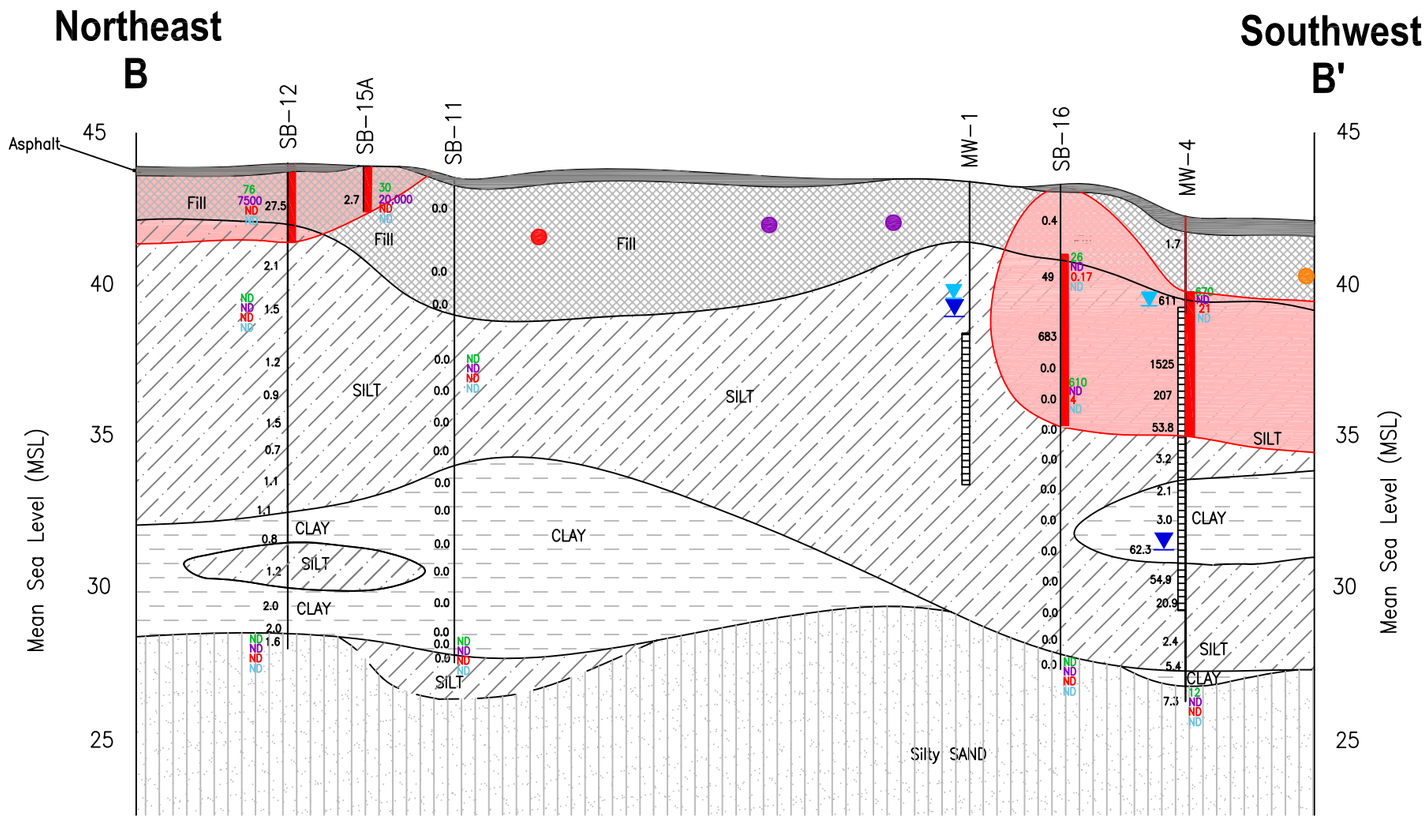
Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 10

Geologic Cross Section A-A' with MTCA Method A Soil CUL Exceedance Area

DATE: 06/09/2010 | DRAWING: Blaine X-sect.dwg

06/15/10
Drawn By AJW
Path: Bothell168-2k(Z:/Ecology/Blaine Mini Mart\Working\x-sect.dwg



LEGEND:

- Boring
- Screened Interval
- Highest Recorderd Groundwater Elevation
- Groundwater Elevation Recorded During Drilling or Lowest Recorded Groundwater Elevation.
- Estimated Extent of Soil Contaminants Exceeding MTCA Method A CULs for Petroleum
- Approximate Extent of Area with Any Contaminants Exceeding MTCA Method A Soil CULs (Dashed Where Inferred)
- Contact Line Between Soil Types

Concentrations in Soil Measured in milligrams per kilograms (mg/kg)

- 87 — Gasoline–Range Hydrocarbons
- 20,000 — Heavy Oil–Range Hydrocarbons
- 390 — Benzene
- ND — Methyl Tert–Butyl Ether
- ND — Not Detected at or above Laboratory Detection Limits
- 556 — Photo–ionization Detection, Measured in parts per million (ppm)
- NM — Not Measured

SUBSURFACE UTILITIES:

- Electric Line
- Natural Gas Line
- Product Line

0 10 20
Feet
Horizontal Scale 1" = 20'
Vertical Exaggeration 4:1 (1"= 5')

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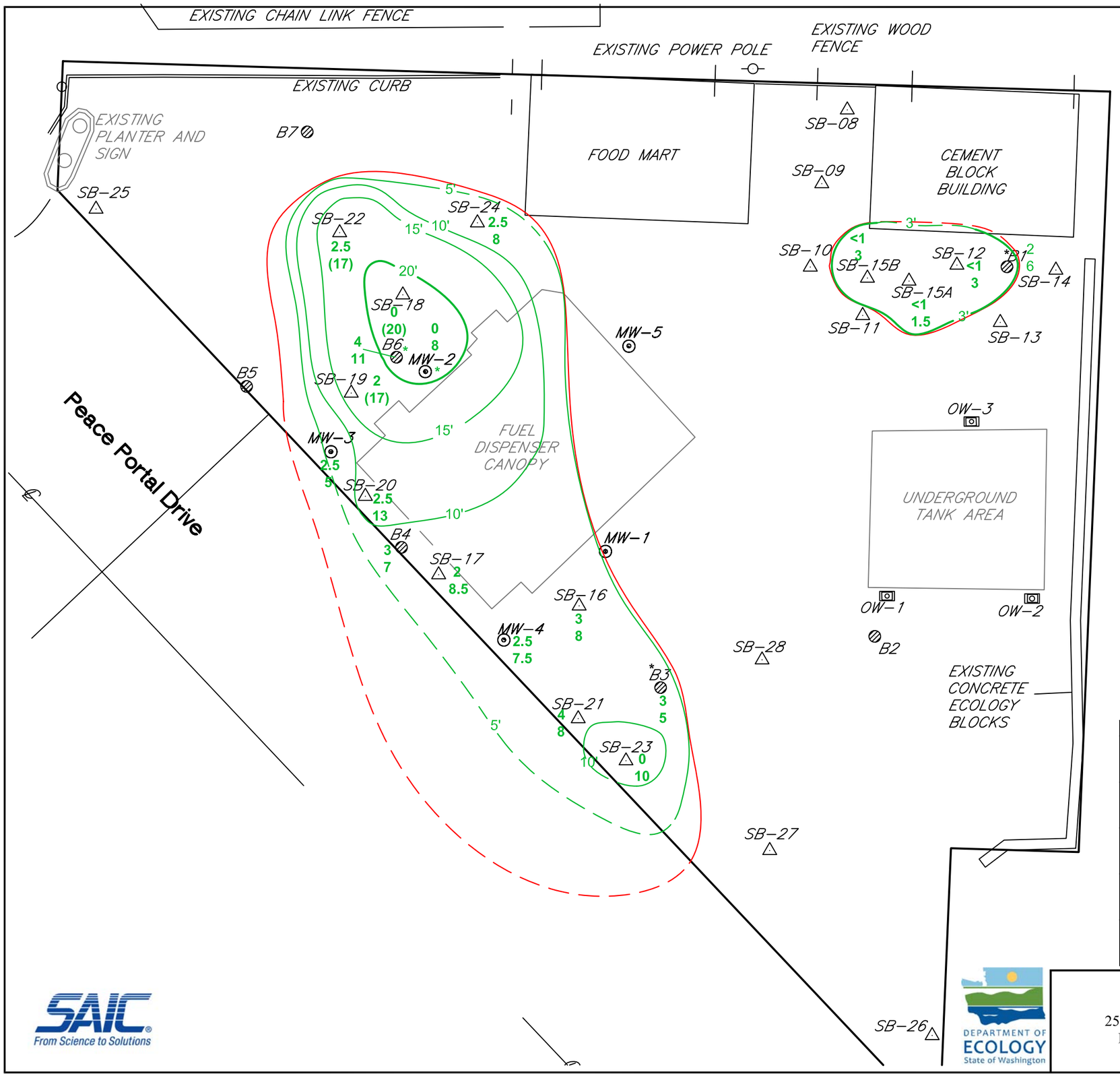
DEPARTMENT OF ECOLOGY State of Washington

Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 11
Geologic Cross Section B-B' with MTCA Method A Soil CUL Exceedance Area

DATE: 07/08/2010 | DRAWING: x-sect.dwg

07/08/10
Drawn By AJW
Path: Bothell68-2k(Z:/Ecology/Blaine Mini Mart\Working\x-sect.dwg



LEGEND

B2	2005 Boring Locations
SB-21	2010 Boring Locations
MW-1	Groundwater Monitoring Well Locations
	Area of Contamination (Lateral Extent of combined MTCA Method A Cleanup Levels Soil Exceedances, Dashed Where Inferred
10'	Extent of Contamination at stated depth (feet below ground surface)
2	Top Depth
10	Bottom Depth
(20)	Contamination extends greeater than the base , parenthesis represent estimated bottom depth of contamination.
*	Analytical data obtained from MW-2 and B-6 may not represent impacted soil in these borings. Depth range of impacted soil was estimated based on field screening measurements.
*	Contamination at B-1 and B-3 are interpretated from boring logs.

Note: Contamination depth is given in feet and represents the combined vertical range of soil contamination at each boring for petroleum constituents.

Estimate Excavation Volumes		
>20ft	7609.73 sq ft	282 yards 422.7 tons
15-20	1043.09 sq ft	676.1 yards 1014.15 tons
10-15	1170.55 sq ft	542 yards 813 tons
5-10	2353.10 sq ft	654 yards 981 tons
3	619.21 sq ft	68.8 yards 103.2 tons

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Blaine Mini-Mart
2530 Peace Portal Drive
Blaine, Washington

FIGURE 12

Extent of Impacted Soil Exceeding MTCA Method A Cleanup Levels

DATE: 07/08/10 | DRAWING: Soil Con Depth.dwg

Tables

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Soil Sampling Analysis Information

Table 1. Soil Sampling and Analysis Information

Boring No./ Sample No.	Sample Depth (feet bgs)*	Sample Date	TPH-Gasoline Range	TPH-Diesel Range TPH - Heavy Oil Range	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	Methyl tert-Butyl Ether (MTBE)	Polychlorinated biphenyls (PCBs)	Lead
SB-08-6.0	6	3/8/2010	x	x	x	x		
SB-08-16	16	3/8/2010	x	x	x	x		
SB-9-06	6	3/8/2010	x	x	x	x		
SB-9-16	16	3/8/2010	x	x	x	x		
SB-10-05	5	3/8/2010	x	x	x	x		
SB-10-16	16	3/8/2010	x	x	x	x		
SB-11-06	6	3/8/2010	x	x	x	x		
SB-11-16	16	3/8/2010	x	x	x	x		
SB-12-1	1	3/9/2010	x	x	x	x		
SB-12-5	5	3/9/2010	x	x	x	x	x	x
SB-12-16	16	3/9/2010	x	x	x	x		
SB-13-5	5	3/9/2010	x	x	x	x		
SB-13-16	16	3/9/2010	x	x	x	x		
SB-14-5	5	3/9/2010	x	x	x	x		
SB-14-16	16	3/9/2010	x	x	x	x		
SB-15-1A	1	3/9/2010	x	x	x	x		
SB-15B-1	1	3/9/2010	x	x	x	x		
SB-15B-5	5	3/9/2010	x	x	x	x		
SB-15B-16	16	3/9/2010	x	x	x	x		
SB-16-3	3	3/10/2010	x	x	x	x		x
SB-16-7	7	3/11/2010	x	x	x	x		
SB-16-16	16	3/11/2010	x	x	x	x		
SB-17-5	5	3/10/2010	x	x	x	x		
SB-17-16	16	3/10/2010	x	x	x	x		
SB-18-5	5	3/10/2010	x	x	x	x		x
SB-18-10	10	3/10/2010	x	x	x	x		
SB-18-19	19	3/10/2010	x	x	x	x		
SB-19-5	5	3/10/2010	x	x	x	x		
SB-19-10	10	3/10/2010	x	x	x	x		x
SB-19-16	16	3/10/2010	x	x	x	x		
SB-20-5	5	3/10/2010	x	x	x	x		x
SB-20-16	16	3/10/2010	x	x	x	x		
SB-21-5	5	3/10/2010	x	x	x	x		x
SB-21-16	16	3/11/2010	x	x	x	x		
SB-22-5	5	3/10/2010	x	x	x	x		x
SB-22-8	8	3/11/2010	x	x	x	x		x
SB-22-15	2	3/11/2010	x	x	x	x		x

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Soil Sampling Analysis Information

Table 1. Soil Sampling and Analysis Information

Boring No./ Sample No.	Sample Depth (feet bgs)*	Sample Date	TPH-Gasoline Range	TPH-Diesel Range TPH - Heavy Oil Range	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	Methyl tert-Butyl Ether (MTBE)	Polychlorinated biphenyls (PCBs)	Lead
SB-23-4	15	3/11/2010	x	x	x	x		x
SB-23-8	8	3/11/2010	x	x	x	x		
SB-23-16	16	3/11/2010	x	x	x	x		
SB-24-5	5	3/12/2010	x	x	x	x		
SB-24-8	8	3/12/2010	x	x	x	x		
SB-24-16	16	3/12/2010	x	x	x	x		
SB-25-5	5	3/12/2010	x	x	x	x		
SB-25-16	16	3/12/2010	x	x	x	x		
SB-26-5	5	3/12/2010	x	x	x	x		
SB-26-14	14	3/12/2010	x	x	x	x		
SB-28-5	5	3/12/2010	x	x	x	x		
SB-28-16	16	3/12/2010	x	x	x	x		
MW-3-3	3	3/10/2010	x	x	x	x		
MW-3-5	5	3/10/2010	x	x	x	x		
MW-3-17	17	3/10/2010	x	x	x	x		x
MW-4-3	3	3/10/2010	x	x	x	x		
MW-4-16	16	3/10/2010	x	x	x	x		
MW-5-5	5	3/10/2010	x	x	x	x		x
MW-5-16	16	3/10/2010	x	x	x	x		
Trip Blanks	---	03/09/10	x		x	x		
		03/11/10	x		x	x		
		03/12/10	x		x	x		
Field Blank	---	03/11/10	x	x	x	x	x	x
Equipment Rinsate Blank	---	03/11/10	x	x	x	x	x	x

USEPA = United States Environmental Protection Agency
TPH-Gasoline Range (NWTPH-Gx)
TPH-Diesel Range extended (NWTPH-Dx with silica gel cleanup)
BTEX (EPA Method 8260C)
MTBE (EPA Method 8260C)
PCBs Aroclors (USEPA Method SW8082)
Lead (USEPA Method 6010B)
* Sample depths indicate top of sample
x = Indicates one or more analyte was measured on the date provided
bgs - Below ground surface

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Soil Analytical Results

Table 2. Soil Analytical Results

Laboratory ID / Sample ID	Sample Depth (feet bgs)*	Date	Units	Benzene	Toluene	Ethylbenzene	m,p - Xylene	o - Xylene	Methyl Tert - Butyl Ether	Aroclor 1016	Arocolor 1242	Arocolor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Total PCB	TPH-Gasoline Range	TPH-Diesel Range	TPH-Heavy Oil Range	Lead
SB-08-6.0 / SB-08-06	6	3/8/2010	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	--	--	--	--	--	--	--	--	12 U	6.8 U	14 U	--
SB-08-16 / SB-08-16	16	3/8/2010	mg/kg	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	--	--	--	--	--	--	--	--	**12**	7.6 U	15 U	--
SB-09-06 / SB-09-06	6	3/8/2010	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	--	--	--	--	--	--	--	--	8 U	6.4 U	13 U	--
SB-09-16 / SB-09-16	16	3/8/2010	mg/kg	**0.0006** J	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	--	--	--	--	--	--	--	--	**11**	6.1 U	12 U	--
SB-10-05 / SB-10-05	05	3/8/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	9.4 U	6.8 U	14 U	--
SB-10-16 / SB-10-16	16	3/8/2010	mg/kg	**0.0009** J	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	--	--	--	--	--	--	--	--	10 U	7.8 U	16 U	--
SB-11-06 / SB-11-06	06	3/8/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	8.3 U	6.3 U	13 U	--
SB-11-16 / SB-11-16	16	3/8/2010	mg/kg	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	--	--	--	--	--	--	--	--	12 U	7.2 U	14 U	--
SB-12-1 / SB-12-01	1	3/9/2010	mg/kg	0.0009 U	**0.0008** J	**0.0016**	**0.01**	**0.0071**	0.0009 U	0.02 U	0.02 U	**0.021**	**0.012** J	**0.01** J	0.02 U	0.02 U	**0.04**	**290**	**1100**	**7500**	**28**
SB-12-5 / SB-12-05	5	3/9/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	8.8 U	6.5 U	13 U	--
SB-12-16 / SB-12-16	16	3/9/2010	mg/kg	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	--	--	--	--	--	--	--	--	8.6 U	6.4 U	13 U	--
SB-13-5 / SB-13-05	5	3/9/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	7.2 U	6.2 U	12 U	--
SB-13-16 / SB-13-16	16	3/9/2010	mg/kg	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	--	--	--	--	--	--	--	--	10 U	6.7 U	13 U	--
SB-14-5 / SB-14-05	5	3/9/2010	mg/kg	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	--	--	--	--	--	--	--	--	9.1 U	6.6 U	13 U	--
SB-14-16 / SB-14-16	16	3/9/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	8.2 U	6.8 U	14 U	--
SB-15-1A / SB-15A-01	1	3/9/2010	mg/kg	0.0007 U	**0.0012**	**0.0021**	**0.018**	**0.01**	0.0007 U	--	--	--	--	--	--	--	--	**30**	**1700**	**20000**	--
SB-15-B-1 / SB-15B-01	1	3/9/2010	mg/kg	**0.0027**	**0.0097**	**0.0046**	**0.015**	**0.0095**	0.0011 U	--	--	--	--	--	--	--	--	**76**	**1100**	**7300**	--
SB-15B-5 / SB-15B-05	5	3/9/2010	mg/kg	**0.0043**	**0.022**	**0.0047**	**0.016**	**0.0052**	0.0013 U	--	--	--	--	--	--	--	--	8.3 U	**12**	**66**	--
SB-15B-16 / SB-15B-16	16	3/9/2010	mg/kg	**0.0018**	**0.0049**	**0.0009** J	**0.0029**	**0.0009** J	0.001 U	--	--	--	--	--	--	--	--	6.6 U	6.8 U	14 U	--
SB-16-3 / SB-16-03	3	3/10/2010	mg/kg	**0.17**	**0.0044**	**0.032**	**0.13**	**0.0026**	0.0014 U	--	--	--	--	--	--	--	--	**26**	7.0 U	14 U	6 U
SB-16-7 / SB-16-07	7	3/11/2010	mg/kg	**4**	**9.7**	2.2	**8.3**	**3**	0.28 U	--	--	--	--	--	--	--	--	**910**	6.9 U	14 U	--
SB-16-16 / SB-16-16	16	3/11/2010	mg/kg	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	--	--	--	--	--	--	--	--	9.6 U	7.8 U	16 U	--
SB-17-5 / SB-17-05	5	3/10/2010	mg/kg	**4.5**	**16**	**14**	**58**	**15**	4.5 U	--	--	--	--	--	--	--	--	**1200**	**14**	**21**	--
SB-17-16 / SB-17-16	16	3/10/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	9.6 U	7.9 U	16 U	--
SB-18-5 / SB-18-05	5	3/10/2010	mg/kg	**290**	**1700**	**600**	**2600**	**910**	56 U	--	--	--	--	--	--	--	--	**52000**	**1100**	110 U	**8**
SB-18-10 / SB-18-10	10	3/10/2010	mg/kg	**3.8**	**3.8**	**1.6**	**5.4**	**2.2**	0.31 U	--	--	--	--	--	--	--	--	**97**	6.2 U	12 U	--
SB-18-19 / SB-18-19	19	3/10/2010	mg/kg	**0.39**	**2.5**	**0.94**	**4**	**1.5**	0.39 U	--	--	--	--	--	--	--	--	**86**	5.3 U	10 U	--
SB-19-5 / SB-19-05	5	3/10/2010	mg/kg	**0.69** J	**2**	**2**	**7.7**	**2**	0.83 U	--	--	--	--	--	--	--	--	**220**	**18**	12 U	--
SB-19-10 / SB-19-10	10	3/10/2010	mg/kg	**2.2**	**11**	**6.1**	**25**	**7.4**	1.4 U	--	--	--	--	--	--	--	--	**1000**	6.2 U	12 U	6 U
SB-19-16 / SB-19-16	16	3/10/2010	mg/kg	**0.23**	**2**	**0.93**	**4.3**	**1.5**	0.07 U	--	--	--	--	--	--	--	--	**67**	6.0 U	**17**	--
SB-20-5 / SB-20-05	5	3/10/2010	mg/kg	**0.16**	**0.1**	**0.32**	**1.1**	**0.16**	0.071 U	--	--	--	--	--	--	--	--	**60**	6.4 U	13 U	**7**
SB-20-16 / SB-20-16	16	3/10/2010	mg/kg	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	--	--	--	--	--	--	--	--	6.8 U	5.2 U	10 U	--
MTCA Method A CUL (mg/kg)				**0.03**	**7**	**6**	**9***		**0.1**	--	--	--	--	--	--	--	**1**	**30**	**2000**	**2000**	**250**
MTCA Method B CUL (mg/kg)				--	--	--	--		--	**5.6**	--	--	**1.6**	--	--	--	--	--	--	--	--

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Soil Analytical Results

Table 2. Soil Analytical Results

Laboratory ID / Sample ID	Sample Depth (feet bgs)*	Date	Units	Benzene	Toluene	Ethylbenzene	m,p - Xylene	o - Xylene	Methyl Tert - Butyl Ether	Aroclor 1016	Arocolor 1242	Arocolor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Total PCB	TPH-Gasoline Range	TPH-Diesel Range	TPH-Heavy Oil Range	Lead
SB-21-5 / SB-21-05	5	3/10/2010	mg/kg	**3.7**	**0.072** J	**1.7**	**0.29**	0.12 U	0.12 U	--	--	--	--	--	--	--	--	**100**	6.8 U	14 U	**7**
SB-21-16 / SB-21-16	16	3/11/2010	mg/kg	**0.0036**	0.0015 U	0.0018	0.0015 U	0.0015 U	0.0015 U	--	--	--	--	--	--	--	--	8.6 U	6.5 U	13 U	--
SB-22-5 / SB-22-05	5	3/10/2010	mg/kg	**5**	**14**	**4**	**18**	**6.3**	1.5 U	--	--	--	--	--	--	--	--	**4400**	**50**	13 U	6 U
SB-22-8 / SB-22-08	8	3/11/2010	mg/kg	**11**	**43**	**14**	**60**	**21**	1.8 U	--	--	--	--	--	--	--	--	**740**	**41**	14 U	7 U
SB-22-15 / SB-22-15	15	3/11/2010	mg/kg	**3.6**	**28**	**11**	**49**	**18**	0.57 U	--	--	--	--	--	--	--	--	**1400**	**58**	13 U	2 U
SB-23-4 / SB-23-04	4	3/11/2010	mg/kg	**5.1**	**11**	**55**	**220**	**66**	2.5 U	--	--	--	--	--	--	--	--	**15000**	**170**	**42**	**14**
SB-23-8 / SB-23-08	8	3/11/2010	mg/kg	**0.039**	0.0088	**0.092**	**0.28**	**0.076**	0.0011 U	--	--	--	--	--	--	--	--	8.1 U	6.6 U	13 U	--
SB-23-16 / SB-23-16	16	3/11/2010	mg/kg	**0.001** J	0.0016 U	0.0016 U	0.0016 U	0.0016 U	0.0016 U	--	--	--	--	--	--	--	--	10 U	7.4 U	15 U	--
SB-24-5 / SB-24-05	5	3/12/2010	mg/kg	**0.0056**	**0.0022**	**0.044**	**0.025**	**0.011**	0.0013 U	--	--	--	--	--	--	--	--	12	6.4 U	13 U	--
SB-24-8 / SB-24-08	8	3/12/2010	mg/kg	**0.022**	**0.01**	**0.54**	**0.25**	**0.058**	0.0012 U	--	--	--	--	--	--	--	--	23	7.0 U	14 U	--
SB-24-16 / SB-24-16	16	3/12/2010	mg/kg	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	--	--	--	--	--	--	--	--	4.7 U	5.2 U	10 U	--
SB-25-5 / SB-25-05	5	3/12/2010	mg/kg	0.0016 U	**0.001** J	0.0016 U	0.0016 U	0.0016 U	0.0016 U	--	--	--	--	--	--	--	--	9.7 U	**11**	**68**	--
SB-25-16 / SB-25-16	16	3/12/2010	mg/kg	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	0.0008 U	--	--	--	--	--	--	--	--	5.3 U	5.2 U	10 U	--
SB-26-5 / SB-26-05	5	3/12/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	7.3 U	6.7 U	14 U	--
SB-26-14 / SB-26-14	14	3/12/2010	mg/kg	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	--	--	--	--	--	--	--	--	10 U	6.8 U	14 U	--
SB-28-5 / SB-28-05	5	3/12/2010	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	9.1 U	6.8 U	14 U	--
SB-28-16 / SB-28-16	16	3/12/2010	mg/kg	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	**0.002**	--	--	--	--	--	--	--	--	11 U	7.3 U	15 U	--
MW-3-3 / MW-3-03	3	3/10/2010	mg/kg	**0.22**	**0.17**	**0.46**	**1.9**	**0.059**	0.086 U	--	--	--	--	--	--	--	--	**92**	6.8 U	14 U	--
MW-3-5 / MW-3-05	5	3/10/2010	mg/kg	**0.0008** J	**0.0007** J	0.0013 U	0.0013 U	0.0013 U	0.0013 U	--	--	--	--	--	--	--	--	8.9 U	6.5 U	13 U	--
MW-3-17 / MW-3-17	17	3/10/2010	mg/kg	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	--	--	--	--	--	--	--	--	5.0 U	5.1 U	10 U	2 U
MW-4-3 / MW-4-03	3	3/10/2010	mg/kg	**21**	**92**	**19**	**72**	**23**	9.5 U	--	--	--	--	--	--	--	--	**670**	6.4 U	13 U	--
MW-4-16 / MW-4-16	16	3/10/2010	mg/kg	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	--	--	--	--	--	--	--	--	**12**	7.2 U	14 U	--
MW-5-5 / MW-5-05	5	3/10/2010	mg/kg	**0.001**	**0.0011**	**0.0005** J	**0.002**	**0.0008** J	0.0009 U	--	--	--	--	--	--	--	--	**5.8**	5.0 U	10 U	**3**
MW-5-16 / MW-5-16	16	3/10/2010	mg/kg	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	0.0009 U	--	--	--	--	--	--	--	--	6.2 U	5.3 U	11 U	--
MTCA Method A CUL (mg/kg)				**0.03**	**7**	**6**	**9***		**0.1**	--	--	--	--	--	--	--	**1**	**30**	**2000**	**2000**	**250**
MTCA Method B CUL (mg/kg)				--	--	--	--		--	**5.6**	--	--	**1.6**	--	--	--	--	--	--	--	--

Gray highlighted detections are those values exceeding MTCA A cleanup levels, MTCA B values used when no method A value was available
Bold values are detected concentrations; non-bold values are non-detected at the reporting or detection limit.
-- = Not Analyzed
* Sample depths indicate top of sample
U = Indicates that the target analyte was not detected at the reported concentration
J = Estimated concentration when the value is less than ARI's established reporting limits.
* = MTCA Cleanup levels for total xylenes

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Groundwater Sampling Analysis Information

Table 3. Groundwater Sampling and Analysis Information

Groundwater Monitoring Well ID/ Sample ID	Sample Date	TPH-Gasoline Range	TPH-Diesel Range TPH - Heavy Oil Range	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	Methyl tert-Butyl Ether (MTBE)	Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)	1,2-Dibromoethane (EDB) 1,2-Dichloroethane (EDC)	Total Lead	Dissolved Lead
MW-1/MW-1-031710	03/17/10	x	x	x	x		x	x	x
MW-2/MW-2-031810	03/18/10	x	x	x	x	x	x	x	x
MW-3/MW-3-031710	03/17/10	x	x	x	x	x	x	x	x
MW-4/MW-4-031710	03/17/10	x	x	x				x	x
MW-5/MW-5-031710	03/17/10	x	x	x	x	x	x	x	x
MW-5-031710-FD (Duplicate)	03/17/10	x	x	x	x		x	x	x
TB-031710-01	03/17/10	x	x	x	x				

USEPA = United States Environmental Protection Agency
TPH-Gasoline Range (NWTPH-Gx)
TPH-Diesel Range extended (NWTPH-Dx with silica gel cleanup)
BTEX (US EPA Method 8260C)
MTBE (USEPA Method 8260C)
Carc PAHs , 19 compounds (USEPA Method 8270D)
EDB (EPA Method 8260C)
EDC (EPA Method 8260C)
Total and Dissolved Lead (Method 6010B)
x = Indicates one or more analyte was measured on the date provided

Table 4. Groundwater Analytical Results

Laboratory ID / Sample ID	Date	Units	Naphthalene	2-Methylnapthalene	1-Methylnapthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
MW-1-031710 / MW-1-031710	3/17/2010	ug/L	**0.19**	**0.044**	**0.024**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MW-2-031810 / MW-2-031810	3/17/2010	ug/L	**400**	**110**	**48**	0.010 U	**0.15**	**0.15**	**0.12**	**0.016**	**0.013**	**0.017**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MW-3-031710 / MW-3-031710	3/17/2010	ug/L	**0.96**	**0.28**	**0.12**	0.010 U	0.010 U	**0.020**	**0.016**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MW-4-031710 / MW-4-031710	3/17/2010	ug/L	**0.92**	**0.22**	**1.8**	0.010 U	**0.72**	**2.2**	**2.9**	**0.21**	**0.026**	**0.070**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MW-5-031710 / MW-5-031710	3/17/2010	ug/L	**0.68**	**0.13**	**1.3**	0.010 U	**0.64**	**1.7**	**1.9**	0.14	**0.020**	**0.050**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MW-5-031710-FD / MW-5-031710-FD	3/17/2010	ug/L	**10**	**2.7**	**1.7**	0.010 U	**0.014**	**0.026**	**0.020**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
TB-030910-1 / TB-030910-1	3/9/2010	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB-2-031110 / TB-031110-2	3/11/2010	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB-031210-3 / TB-031210-3	3/12/2010	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB-031710-01 / TB-031710-4	3/17/2010	ug/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ER-031110-1 / ER-031110-1	3/11/2010	ug/L	**0.018**	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
MTCA Method A CUL (ug/L)			**160**	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.1**	--
MTCA Method B CUL (ug/L)				**32**	--	--	**960**	**640**	--	**480**	**640**	**480**	--	--	--	--	--	--

Gray highlighted detections are those values exceeding MTCA A cleanup levels, MTCA B values used when no method A value was available
Bold values are detected concentrations; non-bold values are non-detected at the reporting or detection limit.
-- = Not Analyzed
U = Indicates that the target analyte was not detected at the reported concentration
* = MTCA Cleanup levels for total xylenes

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Groundwater Analytical Results

Table 4. Groundwater Analytical Results

Laboratory ID / Sample ID	Date	Units	Dibenz (a, h) anthracene	Benzo (g, h, i) perylene	Dibenzofuran	1,2-Dichloroethane (EDC)	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Ethylene Dibromide (EDB)	Methyl tert-Butyl Ether	TPH-Gasoline Range	TPH-Diesel Range	TPH-Heavy Oil Range	Lead (Total)	Lead (Dissolved)
MW-1-031710 / MW-1-031710	3/17/2010	ug/L	0.010 U	0.010 U	0.010 U	**10**	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.5 U	250 U	250 U	500 U	20 U	20 U
MW-2-031810 / MW-2-031810	3/17/2010	ug/L	0.010 U	0.010 U	**0.053**	100 U	**22000**	**18000**	**2400**	**10000**	**3500**	100 U	**3900**	**160**	**750**	500 U	20 U	20 U
MW-3-031710 / MW-3-031710	3/17/2010	ug/L	0.010 U	0.010 U	**0.019**	0.2 U	**6.3**	**6.2**	**3.5**	**46**	**27**	0.2 U	**39**	**560**	250 U	500 U	20 U	20 U
MW-4-031710 / MW-4-031710	3/17/2010	ug/L	0.010 U	0.010 U	**0.96**	20 U	**2800**	**1800**	**400**	**2900**	**970**	20 U	**89**	**28000**	250 U	500 U	20 U	20 U
MW-5-031710 / MW-5-031710	3/17/2010	ug/L	0.010 U	0.010 U	**0.86**	0.2 U	**0.6**	**1.1**	0.2 U	**3.9**	**3.9**	0.2 U	0.5 U	**330**	250 U	500 U	20 U	20 U
MW-5-031710-FD / MW-5-031710-FD	3/17/2010	ug/L	0.010 U	0.010 U	**0.019**	0.2 U	**0.6**	**1.2**	0.2 U	**4.0**	**4.1**	0.2 U	0.5 U	**320**	250 U	500 U	20 U	20 U
TB-030910-1 / TB-030910-1	3/9/2010	ug/L	--	--	--	--	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	--	1.0 U	0.25 U	--	--	--	--
TB-2-031110 / TB-031110-2	3/11/2010	ug/L	--	--	--	--	0.2 U	0.2 U	0.2 U	0.4 U	0.5 U	--	0.5 U	0.25 U	--	--	--	--
TB-031210-3 / TB-031210-3	3/12/2010	ug/L	--	--	--	--	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	--	1.0 U	0.25 U	--	--	--	--
TB-031710-01 / TB-031710-4	3/17/2010	ug/L	--	--	--	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.5 U	0.25 U	--	--	--	--
ER-031110-1 / ER-031110-1	3/11/2010	ug/L	0.010 U	0.010 U	0.010 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.5 U	0.25 U	0.25 U	0.50 U	0.02 U	--
MTCA Method A CUL (ug/L)			--	--	--	**5**	**5**	**1000**	**700**	**1000***		**0.1**	**20**	**800**	**500**	**500**	**15**	**15**
MTCA Method B CUL (ug/L)			--	--	**31**	--	--	--	--	--		--	--	--	--	--	--	--

Gray highlighted detections are those values exceeding MTCA A cleanup levels, MTCA B values used when no method A value was available
Bold values are detected concentrations; non-bold values are non-detected at the reporting or detection limit.
-- = Not Analyzed
U = Indicates that the target analyte was not detected at the reported concentration
* = MTCA Cleanup levels for total xylenes

Table 5. Elevation and Water Level Data

WELL ID/ DATE	(feet above MSL)	TOC Elev (feet above MSL)	DTW (ft)	GWE (feet above MSL)
MW-1		43.40		
10/22/1997			4.44	38.96
5/2/2008			3.43	39.97
3/17/2010			3.85	39.55
6/22/2010			3.85	39.55
MW-2		43.41		
10/22/1997			4.06	39.34
5/2/2008			3.12	40.28
3/17/2010			2.95	40.46
6/22/2010			3.39	40.02
MW-3		42.48		
3/17/2010			3.06	39.42
6/22/2010			3.40	39.08
MW-4		42.25		
3/17/2010			2.95	39.30
6/22/2010			3.43	38.82
MW-5		43.17		
3/17/2010			2.16	41.01
6/22/2010			1.14	42.03
B-1	43.86			
B-2	42.96			
B-3	42.23			
B-4	42.85			
B-5	42.35			
B-6	43.34			
B-7	43.45			
SB-08	44.08			
SB-09	43.91			
SB-10	43.73			
SB-11	43.53			
SB-12	43.99			
SB-13	43.80			
SB-14	43.99			
SB-15a	43.91			
SB-15b	43.76			
SB-16	43.31			
SB-17	43.14			
SB-18	43.27			
SB-19	43.29			
SB-20	43.20			
SB-21	41.92			
SB-22	43.34			
SB-23	41.56			
SB-24	43.96			
SB-25	42.97			
SB-26	40.96			
SB-27	41.65			
SB-28	42.70			

TOC = Top of well casing (surveyed PVC well casing)
DTW = Depth to water below TOC
GWE = Groundwater elevation (recorded above Mean Sea Level); see Appendix E
MSL = Mean Sea Level
Groundwater elevation measurement dates include: 3/17/10 and 06/22/10, TOC for monitoring wells MW-1 and MW-2 collected on 3/17/10

1997 Groundwater sampling activities performed by Bek Purnell Engineering, Inc.

2008 Groundwater sampling activates performed by Whatcom Environmental Services, Inc.

Appendix A
Historical Aerial Photographs



SAIC® From Science to Solutions

Figure A–1. Blaine Mini Mart Site: 1950

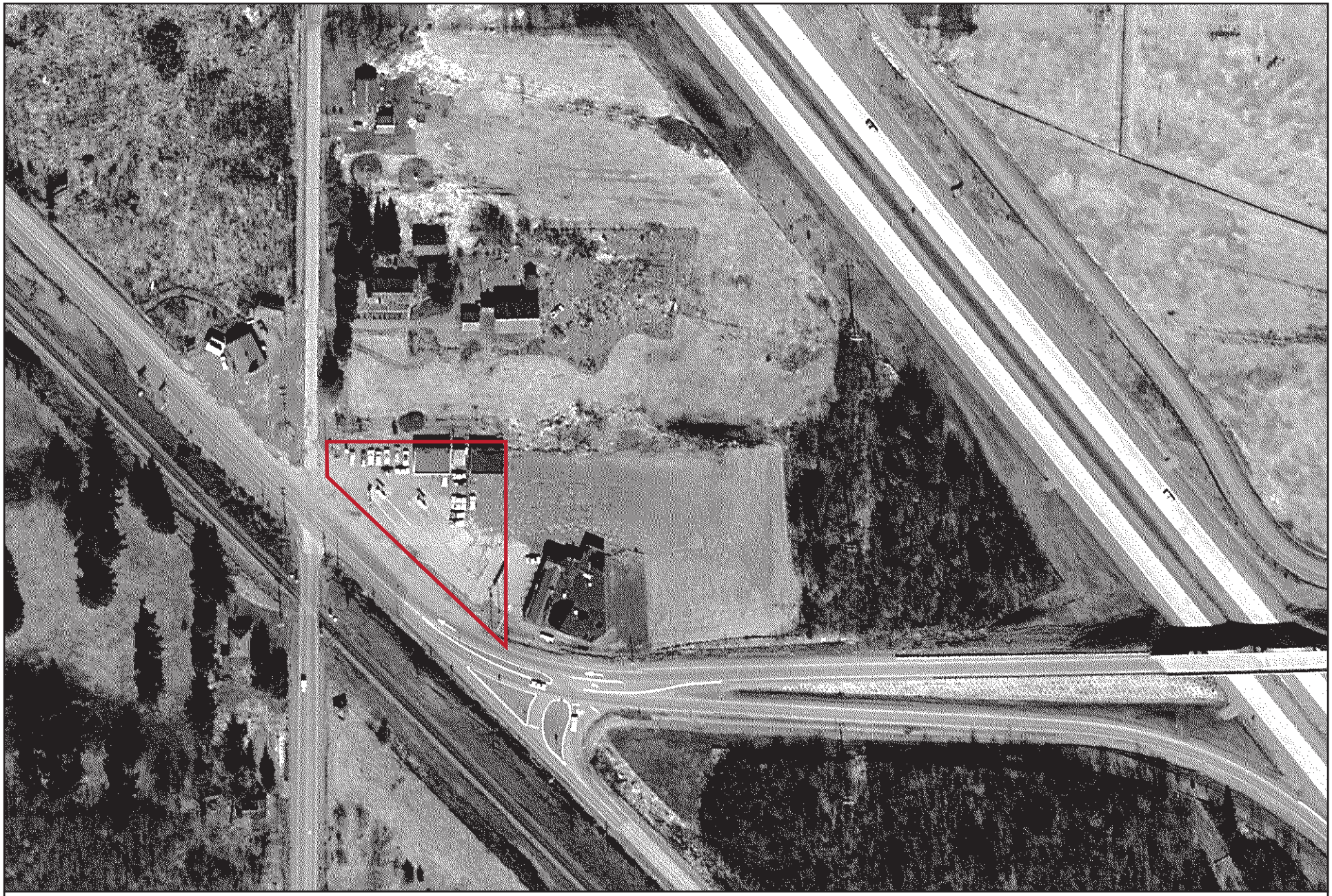
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Figure A–2. Blaine Mini Mart Site: 1961

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Figure A–3. Blaine Mini Mart Site: 1969

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Figure A–4. Blaine Mini Mart Site: 1975

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Figure A–5. Blaine Mini Mart Site: 1981

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Figure A–6. Blaine Mini Mart Site: 1988

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Figure A–7. Blaine Mini Mart Site: 1992

N

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Figure A–8. Blaine Mini Mart Site: 1997

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Appendix B
Historical Soil and Groundwater Data

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Historical Soil Analytical Results Petroleum Constituents

Table B-1. Historical Soil Analytical Results – Petroleum Constituents

Sample Location/ Sample ID	Sample Depth (feet bgs)*	Date	Units	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl Tert - Butyl Ether	TPH-Gasoline Range	TPH-Diesel Range	TPH-Heavy Oil Range	Lead
Buk Purnell Engineering, Inc. 1997 Monitoring Well Installation and Groundwater Analysis												
MW-2/102197-4	4	10/21/1997	mg/kg	0.1 U	0.1 U	0.1 U	0.3 U	--	5 U	--	--	--
Environmental Associates Inc. 2005 Investigation												
B1-4	4	11/11/2005	ppm	0.02 U	0.02 U	0.02 U	0.06 U	--	2 U	50 U	250 U	6.94
B2-14	14	11/11/2005	ppm	0.02 U	0.02 U	0.02 U	0.06 U	0.02 U	2 U	50 U	250 U	2.91
B3-5	5	11/11/2005	ppm	0.02 U	0.02 U	0.02 U	0.06 U	--	2 U	50 U	250 U	--
B4-5	5	11/11/2005	ppm	**0.84**	**1.1**	**1.4**	**4.9**	**0.17**	**63**	50 U	250 U	4.22
B5-8	8	11/11/2005	ppm	0.02 U	0.02 U	0.02 U	0.06 U	--	2 U	50 U	250 U	--
B6-4	4	11/11/2005	ppm	**0.24**	**0.69**	**0.31**	**1.8**	**0.07**	**25**	**160**	250 U	3.01
B6-8	8	11/11/2005	ppm	**0.82**	**0.07**	**0.2**	**0.38**	**0.08**	**5**	50 U	250 U	3.85
B7-4	4	11/11/2005	ppm	0.02 U	0.02 U	0.02 U	0.06 U	--	2 U	50 U	250 U	5.88
MTCA Method A CUL (mg/kg)				**0.3**	**7**	**6**	**9**	**0.1**	**30**	**2000**	**2000**	**250**
MTCA Method B CUL (mg/kg)				**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Gray highlighted detections are those values exceeding MTCA A cleanup levels, MTCA B values used when no A value was available
Bold values are detected concentrations; non-bold values are non-detected at the reporting or detection limit.
MTCA A cleanup levels, MTCA B values used when no A value was available
-- = Not Analyzed
U = Indicates that the target analyte was not detected at the reported concentration
J = Estimated concentration when the value is less than ARI's established reporting limits.
BTEX = Benzene, Toulene, Ethylbenzene, Total Xylenes
MTCA = Model Toxics Control Act
CUL = Cleanup Levels
mg/kg = milligrams per kilograms
ppm = parts per million
* Sample depths indicate top of sample
- 1997 Monitoring Well Installation and Groundwater Analysis Completed by Bek Purnell Engineering, Inc., BTEX analyzed by
United States Environmental Protection Agency (USEPA) 8020, TPH-Gasoline Range analyzed by WNWTPH-Gx, TPH-Diesel Range analyzed by NWTPH-D.
- 2005 Subsurface Sampling and Testing Completed by Environmental Associates, Inc., BTEX and TPH-Gasoline Range analyzed by
USEPA Method 8021B, TPH-Diesel Range analyzed by NWTPH-Gx extended to Include Motor Oil-Range Compounds, Total Metals analyzed by USEPA Method 2008, Total Metals (Lead) analyzed by USEPA Method 2008

Blaine Mini Mart
2530 Peace Portal Drive
Blaine, Washington
Historical Groundwater Analytical Results
Petroleum Constituents

Table B-2. Historical Groundwater Analytical Results – Petroleum Constituents

Sample Location/ Sample ID	Date	Units	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl tert-Butyl Ether	TPH-Gasoline Range	TPH-Diesel Range	TPH-Heavy Oil Range	TPH Motor Oil Range	TPH Mineral Spirits	Lead (Total)	Lead (Dissolved)
OW-1/102197-1	10/21/1997	ug/L	**15**	**4**	1 U	21	--	290	--	--	--	--	--	--
OW-2/102197-2	10/21/1997	ug/L	1 U	1 U	1 U	3 U	--	50 U	--	--	--	--	--	--
OW-3/102197-3	10/21/1997	ug/L	1 U	1 U	1 U	3 U	--	50 U	--	--	--	--	--	--
MW-1	10/22/1997	ug/L	1 U	1 U	1 U	3 U	--	50 U	--	--	--	--	--	--
	11/11/2005	ug/L	1 U	1 U	1 U	3 U	5 U	100 U	**130**	250 U	--			
	4/22/2008	ug/L	1 U	1 U	1 U	3 U	--	50 U	130 U	250 U	--	--	--	--
MW-2	10/22/1997	ug/L	**12,000**	**18,000**	**2,000**	**11,000**	--	**94,000**	--	--	--	--	--	--
	11/11/2005	ug/L	**120,000**	**180,000**	**18,000**	**110,000**	**22,000**	**1,100,000**	**300,000**	**300,000**	--	--	--	--
	4/22/2008	ug/L	**26,000**	**27,000**	**3,600**	**20,000**	--	**150,000**	**2500*** U	250 U	--	--	--	--
B1-GW	11/11/2005	ug/L	1 U	1 U	1 U	3 U	--	100 U	**1,900**	**6,400**	**8,900**	**310**	--	--
MTCA Method A CUL (ug/L)			**5**	**1000**	**700**	**1000**	**20**	**800**	**500**	**500**	**500**	**500**	**15**	**15**
MTCA Method B CUL (ug/L)			--	--	--	--	--	--	--	--			--	--

Gray highlighted detections are those values exceeding MTCA A cleanup levels
Bold values are detected concentrations; non-bold values are non-detected at the reporting or detection limit.
MTCA A cleanup levels, MTCA B values used when no A value was available
-- = Not Analyzed
U = Indicates that the target analyte was not detected at the reported concentration
* = Laboratory detection limit exceeds MTCA Method A Cleanup Levels.
- 1997 Groundwater sampling activities performed by Bek Purnell Engineering, Inc.
- 2005 Groundwater sampling activities performed by Environmental Associates, Inc., NWTPHGx, BTEX and MTBE analyzed by USEPA Method 8021 B, TPH-Diesel analyzed by Method NWTPH-Dx extended to include Motor Oil-Range.
- 2008 Groundwater sampling activities performed by Whatcom Environmental Services, Inc.

Blaine Mini Mart
2530 Peace Port Drive
Blaine, Washington
Soil Analytical Summary
Halogenated VOCs

Table B-3. Historical Soil Analytical Summary – Halogenated VOCs

Sample Location/ Sample ID	Date	Units	Dichlorodifluoromethane		Chloromethane		Vinyl chloride		Bromomethane		Chloroethane		Trichlorofluoromethane		1,1-Dichloroethene		Methylene chloride		trans-1,2-Dichloroethene		1,1-Dichloroethane		2,2-Dichloropropane		cis-1,2-Dichloroethene	
B1-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.5	U	0.05	U	0.05	U	0.05	U	0.05	U
B7-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.5	U	0.05	U	0.05	U	0.05	U	0.05	U

Sample Location/ Sample ID	Date	Units	Chloroform		1,2-Dichloroethane (EDC		1,1,1-Trichloroethane		1,1-Dichloropropene		Carbon Tetrachloride		Trichloroethene		1,2-Dichloropropane		Bromodichloromethane		Chlorobenzene		1,1,1,2-Tetrachloroethane		Bromoform		Bromobenzene	
B1-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
B7-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U

Sample Location/ Sample ID	Date	Units	1,1,2,2-Tetrachloroethane		1,2,3-Trichloropropane		2-Chlorotoluene		4-Chlorotoluene		1,3-Dichlorobenzene		1,4-Dichlorobenzene		1,2-Dichlorobenzene		1,2-Dibromo-3-chloropropane		1,2,4-Trichlorobenzene		Hexachlorobutadiene		1,2,3-Trichlorobenzene	
B1-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
B7-4	11/11/2005	ppm	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U

MTCA cleanup levels these analytes have not been established
U = Indicates that the target analyte was not detected at the reported concentration
MTCA = Model Toxics Control Act
CUL = Cleanup Levels
mg/kg = milligrams per kilograms
ppm = parts per million
Environmental Associates Inc. 2005 Investigation
2005 Subsurface Sampling and Testing Completed by Environmental Associates, Inc., Halogenated VOCs analyzed by USEPA Method 8260

Table B-4. Historical Groundwater Analytical Summary – Halogenated VOCs

Sample Location/ Sample ID	Date	Units	Dichlorodifluoromethane		Chloromethane		Vinyl chloride		Bromomethane		Chloroethane		Trichlorofluoromethane		1,1-Dichloroethene		Methylene chloride		trans-1,2-Dichloroethene		1,1-Dichloroethane		2,2-Dichloropropane		cis-1,2-Dichloroethene		Chloroform		1,2-Dichloroethane (EDC)	
B1-GW	11/11/2005	ug/L	1	U	1	U	0.2	U	1	U	1	U	1	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U
Sample Location/ Sample ID	Date	Units	1,1,1-Trichloroethane		1,1-Dichloropropene		Carbon Tetrachloride		Trichloroethene		1,2-Dichloropropane		Bromodichloromethane		Dibromomethane		cis-1,3-Dichloropropene		cis-1,3-Dichloropropene		trans-1,3-Dichloropropene		1,1,2-Trichloroethane		Dibromochloromethane		1,2-Dibromoethane (EDB)		Chlorobenzene	
B1-GW	11/11/2005	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Sample Location/ Sample ID	Date	Units	1,1,1,2-Tetrachloroethane		Bromoform		Bromobenzene		1,1,2,2-Tetrachloroethane		1,2,3-Trichloropropane		2-Chlorotoluene		4-Chlorotoluene		1,3-Dichlorobenzene		1,4-Dichlorobenzene		1,2-Dichlorobenzene		1,2-Dibromo-3-chloropropane		1,2,4-Trichlorobenzene		Hexachlorobutadiene		1,2,3-Trichlorobenzene	
B1-GW	11/11/2005	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

MTCA cleanup levels these analytes have not been established
U = Indicates that the target analyte was not detected at the reported concentration
MTCA = Model Toxics Control Act
CUL = Cleanup Levels
mg/kg = milligrams per kilograms
ppm = parts per million
Environmental Associates Inc. 2005 Investigation
2005 Subsurface Sampling and Testing Completed by Environmental Associates, Inc., Halogenated VOCs analyzed by USEPA Method 8260

Appendix C
Boring Logs – March 2010

SAIC
From Science to Solutions
18912 North Creek Parkway
Bothell, WA 98011

Monitoring Well: MW-3

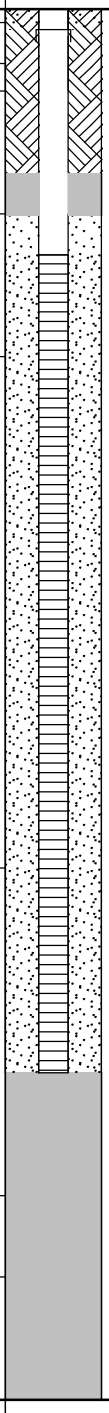
Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA
Logged By: AJW/APL

Date Started: 3/10/2010
Date Completed: 3/10/2010
Driller: Cascade Drillling
Drill Method: AK/ HA/ Direct Push

Total Boring Depth: 17 ft
Hole Diameter: 8 in.
Well Depth: 13 ft
TOC Elevation: 42.48 ft

Well Diameter: 2 in
Well Screen: 3-13 ft
Filter Pack: Prepacked Screen
Well Casing: Sch 40 PVC

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	DEPTH (ft)	LITHOLOGY/DESCRIPTION
					SM	0	Asphalt. Boring was cleared by airknife/ hand auger to 5 feet bgs.
						1	(SM) Light brown, med. to coarse, silty SAND w/ 10% gravel. (no odor, no sheen)
					ML		(ML) Dark brown SILT w/ 10-15% fine sand and 5% gravel. soft. (no odor, no sheen)
Moist	2.5					2	
Moist	115		MW-3-3	G = 92 D = <6.8 HO = <14 B = 0.220	CL	3	(CL) Blue-gray CLAY; w <10% fine sand. soft. (moderate odor, no sheen)
						4	
Moist	16.9		MW-3-5	G = <8.9 D = <6.5 HO = <13 B = 0.0008	ML	5	(ML) Light brown SILT w/ 15% sand and no gravel. soft, med. plasticity. (no odor, no sheen)
Dry	15					6	Light brown silt w/ gray mottling. hard, low plasticity. (no odor, no sheen)
Dry	1.8					7	Same as above. (no odor, no sheen)
Dry	1.7				ML	8	(ML) Same as above w/ no gray mottling. stiff, med. plasticity. (no odor, no sheen)
Dry	0.9					9	Same as above w/ 10% clay. stiff, high plasticity. (no odor, no sheen)
Dry	1.9					10	Same as above. stiff. (no odor, no sheen)
Dry	1.1				CL	11	(CL) Light brown, clayey SILT. very stiff, high plasticity. (no odor, no sheen)
Moist	1.2					12	Light brown, clayey SILT. (no odor, no sheen)
Moist	1.9					13	Same as above w/ slight dark brown mottling. high plasticity. (no odor, no sheen)
Moist	1.4					14	
Moist	1.5				ML	15	(ML) Light to dark brown SILT w/ 20% clay. 2" gray lense at 15 feet bgs. hard, low plasticity. (No odor, no sheen)
Moist	1.5		MW-3-17	G = <5.0 D = <5.1 HO = <10 B = <0.0009	SP	16	(SP) Brown to gray, poorly sorted, v. coarse SAND w/ 15% fine to coarse gravel. (no odor, no sheen)
Moist	19					17	Gray SAND w/ fine to med. gravel. dense. (no odor, no sheen)
						18	Bottom of borehole at 17.0 feet.



SAIC
From Science to Solutions
18912 North Creek Parkway
Bothell, WA 98011

Monitoring Well: MW-4

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA
Logged By: AJW/APL

Date Started: 3/10/2010
Date Completed: 3/10/2010
Driller: Cascade Drillling
Drill Method: AK/ HA/ Direct Push

Total Boring Depth: 16 ft
Hole Diameter: 8 in.
Well Depth: 13 ft
TOC Elevation: 42.25 ft

Well Diameter: 2 in
Well Screen: 3-13 ft
Filter Pack: Prepacked Screen
Well Casing: Sch 40 PVC

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
Moist	1.7				SM		0	Asphalt. Boring was cleared by airknife/ hand auger to 5 feet bgs.
							1	(SM) Light brown, fine to coarse, silty SAND w/ 5% coarse gravel. (no odor, no sheen)
							2	
Moist	611		MW-4-3	G = 670 D = <6.4 HO = <13 B = 21	ML		3	(ML) Light brown SILT w/ gray mottling. soft, med. plasticity. (strong odor, no sheen)
							4	
Moist								
Moist	1525						5	Same as above. (no odor, no sheen)
Moist	207				ML		6	(ML) Gray SILT w/ brown streaking. 5% clay. hard, low plasticilty. (slight odor, no sheen)
Moist	53.8						7	Brown SILT w/ some gray mottling. 15% clay. very stiff, med. plasticity. (no odor, no sheen)
Dry	3.2						8	Same as above w/ 20% clay. hard, high plasticity. (no odor, no sheen)
Dry	2.1				CL		9	(CL) Brown, clayey SILT. hard, high plasticity. (no odor, no sheen)
Dry	3.0						10	Brown, clayey SILT. plasticity decreases at 10 feet bgs. (no odor, no sheen) Brown to gray, clayey SILT w/ 5% gravel. med. plasticity. (slight odor, no sheen)
Wet	62.3						11	
Moist	54.9				ML		12	(ML) Brown SILT w/ 5% clay. soft, low plasticity. (no odor, no sheen)
Dry	20.9						13	Brown SILT w/ 5% clay. stiff, low plasticity. (no odor, no sheen)
Dry	2.4				ML		14	(ML) Brown SILT w/ 15% clay. stiff, med. plasticity. (no odor, no sheen)
Dry	5.4		MW-4-16	G = 12 D = <7.2 HO = <14 B = <0.0019	CL		15	Same as above. (no odor, no sheen) (CL) Gray, clayey SILT. soft, high plasticity. (no odor, no sheen)
Dry	7.3				SM		16	(SM) Brown to gray, fine to med., silty SAND w/ < 5% coarse sand. dense. (no odor, no sheen)
							17	Bottom of borehole at 16.0 feet.

WELL DIAGRAM

- 2" Sch. 40 PVC Pipe, J-Plug and Steel Well Cap
- bentonite chips
- sand
- 0.010 inch slot

18912 North Creek Parkway
Bothell, WA 98011

Monitoring Well: MW-5

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA
Logged By: AJW/APL

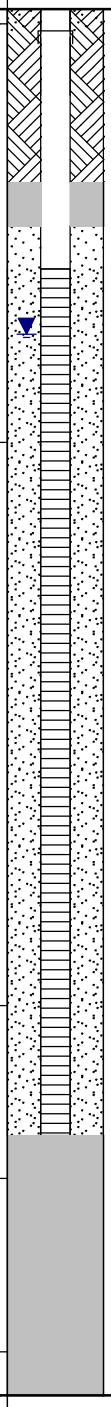
Date Started: 3/10/2010
Date Completed: 3/10/2010
Driller: Cascade Drillling
Drill Method: AK/ HA/ Direct Push

Total Boring Depth: 16 ft
Hole Diameter: 8 in.
Well Depth: 13 ft
TOC Elevation: 43.17 ft

Well Diameter: 2 in
Well Screen: 3-13 ft
Filter Pack: Prepacked Screen
Well Casing: Sch 40 PVC

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by airknife/ hand auger to 5 feet bgs.
					SM		1	(SM) Light brown, silty SAND w/ 20% fine to coarse gravel. Large cobbles encountered at 1 feet. (no odor, slight sheen)
							2	
Moist	4.3						3	
							4	Same as above. (no odor, no sheen)
Moist	0.7		MW-5-5	G = 5.8 D = <5.0 HO = <10 B = 0.001			5	(SP) Gray, medium to coarse, gravelly SAND w/ <5% silt. loose. (slight odor, slight sheen)
Wet					SP		6	
							7	
							8	
							9	Gray, fine to med. SAND w/ 10% silt and 5% gravel. loose. (no odor, no sheen)
							10	
Moist	1.0						11	
Dry	0.9				ML		12	(ML) Gray SILT w/ 10% clay. soft, medium plasticity. (no odor, no sheen)
Dry	1.2						13	Brown SILT w/ gray mottling. 10% clay. stiff, medium plasticity. (no odor, no sheen)
Dry	0.9				CL		14	(CL) Brown, clayey SILT. hard, high plasticity. (no odor, no sheen)
Dry	0.8						15	Gray-brown, clayey SILT w/ shell fragments at 15.25 feet. very stiff, medium plasticity. (no odor, no sheen)
Dry	1.2		MW-5-16	G = <6.2 D = <5.3 HO = <11 B = <0.0009	SM		16	(SM) Gray, fine to coarse, silty SAND. dense. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

WELL DIAGRAM



SAIC
From Science to Solutions
18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-8

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/8/2010
Date Completed: 3/8/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 44.08 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
Moist	0.6				ML		1	(ML) Light brown SILT w/ 20% clay and <5% fine sand. high plasticity. (no odor, no sheen)
Moist	1.7						3	Same as above. (no odor, no sheen)
Wet	0.7						5	Same as above. (no odor, no sheen)
Wet	0.7		SB-8-6	G = <12 D = <6.8 HO = <14 B = <0.0014			6	(ML) Same as above. (no odor, no sheen)
Moist	0.7				ML		7	
Moist	0.1						8	Same as above. (no odor, no sheen)
Moist	0.8						9	
			No Recovery				10	Same as above. (no odor, no sheen)
							11	
							12	(ML) Same as above. (no odor, no sheen)
Moist	2.4				ML		13	
Moist	1.7						14	Same as above. (no odor, no sheen)
Moist	2.0						15	
Moist	2.0		SB-8-16	G = 12 D = <7.6 HO = <15 B = <0.0015	SM		16	(SM) Brown, poorly-sorted, fine to coarse, silty SAND w/ <5% gravel. (no odor, no sheen)
							17	Bottom of borehole at 16.0 feet.

SAIC
From Science to Solutions
18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-9

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/8/2010
Date Completed: 3/8/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.91 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt.
					FILL			(FILL)
Moist	0.2						1	(ML) Light brown SILT w/ 10% fine sand. soft, medium to high plasticity. (no odor, no sheen)
					ML		2	
Dry	0.4						3	Same as above. (no odor, no sheen)
							4	
Dry	1.3						5	(ML) Same as above w <10% fine sand. (no odor, no sheen)
					ML			
Dry	0.6		SB-9-6	G = <8.0 D = <6.4 HO = <13 B = <0.0014	CL		6	(CL) Light brown, clayey SILT. stiff. (no odor, no sheen)
Dry	2.7						7	Same as above.
Dry	2.8						8	Same as above. medium to high plasticity. (no odor, no sheen)
Dry	2.4						9	(CL) Same as above w/ 25% clay. hard. (no odor, no sheen)
					CL			
Dry	3.6						10	Same as above. hard.
Moist	2.2						11	(CL) Light brown, clayey SILT. stiff, medium to high plasticity. (no odor, no sheen)
					CL			
Dry	2.5						12	Same as above. stiff, high plasticity. (no odor, no hseen)
Moist	1.4						13	Same as above. stiff, low plasticity. (no odor, no sheen)
Moist	0.8						14	(CL) Same as above. Plasticity increases at 15.5 feet. (no odor, no sheen)
					CL			
Moist	2.0		SB-9-16	G = 11 D = <6.1 HO = <12 B = 0.0006			15	
Moist	1.0				SP			(SP) Gray, fine to coarse SAND w/ <10% silt and 5% gravel. loose. (no odor, no sheen)
							16	Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-10

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/8/2010
Date Completed: 3/8/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.73 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
					FILL			(FILL)
Dry	1.4						1	(ML) Gray to brown SILT w/ 20% clay, < 10% fine to medium sand and < 10% gravel. soft, medium plasticity. (no odor, no sheen)
					ML		2	
Most	0.5						3	(CL) Gray, clayey SILT w/ <10% sand. soft, medium plasticity. (no odor, no sheen)
					CL		4	
Wet	0.3						5	Gray, clayey SILT. stiff, low plasticity. (no odor, no sheen)
Moist	2.0		SB-10-5	G = <9.4 D = <6.8 HO = <14 B = <0.0013			6	Light brown, clayey SILT w/ gray mottling. (No odor, no sheen)
Dry	1.4						7	(CL) Same as above. (no odor, no sheen)
Dry	2.6				CL		8	Same as above. hard. (no odor, no sheen)
Dry	0.3						9	Same as above. (no odor, no sheen)
Dry	0.2						10	
			No Recovery				11	(ML) Light brown SILT. stiff, medium plasticity. (no odor, no sheen)
					ML			
Moist	1.2						12	Same as above. (no odor, no sheen)
Moist	2.4						13	Same as above. (no odor, no sheen)
Moist	1.2						14	(ML) Same as above. (no odor, no sheen)
					ML			
Moist	0.2		SB-10-16	G = <10 D = <7.8 HO = <16 B = 0.0009			15	
Moist	0.3				SM			(SM) Gray, fine to coarse, silty SAND. w/ <10% gravel. (no odor, no sheen)
							16	Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-11

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/8/2010
Date Completed: 3/8/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.53 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
					FILL			(FILL)
Dry	0.0						1	(ML) Brown to gray SILT w/ 10% clay, 5% fine sand and 5% gravel. soft, low plasticity. (no odor, no sheen)
					ML		2	
Dry	0.0						3	Same as above w/ 20% clay, 5% fine sand and gravel. soft, medium plasticity. (no odor, no sheen)
							4	
Dry	0.0						5	Same as above, stiff at 5 feet bgs. low plasticity. (no odor no sheen)
Dry	0.0		SB-11-6	G = <8.3 D = <6.3 HO = <13 B = <0.0013	ML		6	(ML) Same as above. hard, low plasticity. (no odor no sheen)
Dry	0.0						7	Same as above. (no odor, no sheen)
Dry	0.0						8	Same as above. stiff, medium plasticity. (no odor, no sheen)
Dry	0.0						9	
Dry	0.0						10	(CL) Brownish gray, clayey SILT. stiff, medium plasticity. (no odor, no sheen)
Dry	0.0				CL		11	Brownish gray, clayey SILT. v. stiff, high plasticity. (no odor, no sheen)
Dry	0.0						12	Brown, clayey SILT w/ gray streaks. high plasticity. (no odor, no sheen)
Dry	0.0						13	(CL) Same as above. stiff. (no odor, no sheen)
Dry	0.0				CL		14	
Moist	0.0		SB-11-16	G = <12 D = <7.2 HO = <14 B = <0.0021			15	Same as above. stiff. (no odor, no sheen)
Moist	0.0				ML		16	(ML) Gray SILT w/ 10% fine sand and 5% gravel. soft, low plasticity. (no odor, no sheen)
							17	Bottom of borehole at 16.0 feet.

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18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-12

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.99 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	27.5		SB-12-1	G = 290 D = 1100 HO = 7500 B = <0.0009	SM/ML		1	(SM/ML) Gray, sandy SILT/ silty SAND w/ <10% gravel and <5% coarse sand. soft, low plasticity. (moderate odor, slight sheen)
							2	(ML) Gray SILT w/ 5% fine sand and < 5% clay. stiff, medium plasticity. (no odor, no sheen)
Moist	2.1				ML		3	
							4	Light brown SILT w/ gray mottling. 15% clay, 5% fine sand. medium plasticity. (no odor, no sheen)
Moist	1.5						5	
Dry	1.2		SB-12-5	G = <8.8 D = <6.5 HO = <13 B = <0.0013			6	(ML) Gray SILT w/ brown streaking. very stiff, low plasticity. (no odor, no sheen)
Dry	0.9				ML		7	Light brown SILT w/ 10% clay. hard, medium low plasticity. (no odor, no sheen)
Dry	1.5						8	Same as above. stiff, low plasticity. (no odor, no sheen)
Dry	0.7						9	(ML) Same as above. begins grading to clayey silt. hard, medium plasticity. (no odor, no sheen)
Dry	1.1				ML		10	(CL) Light, brown clayey SILT. hard, medium plasticity. (no odor, no sheen)
Moist	1.1				CL		11	Light brown, clayey SILT. stiff, medium plasticity. (no odor, no sheen)
Dry	0.8				ML		12	(ML) Light brown SILT w/ 10% clay. stiff, low plasticity. (no odor, no sheen)
Moist	1.2				CL		13	(CL) Light brown, clayey SILT. soft, high plasticity. (no odor, no sheen)
Dry	2.0						14	Same as above becoming more stiff. (no odor, no sheen)
Dry	2.0		SB-12-16	G = <8.6 D = <6.4 HO = <13 B = <0.0017			15	
Moist	1.6				SM		16	(SM) Gray, silty, fine to coarse SAND w/ 5% gravel. loose. (no odor, no sheen)
							17	Bottom of borehole at 16.0 feet.

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-13

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.80 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	0.8				SM		1	(SM) Dark brown, organic-rich, silty SAND. loose. (no odor, no sheen)
							2	
Moist	1.1				ML		3	(ML) Light brown to gray SILT w/ 10% fine to medium sand. soft, medium plasticity. (no odor, no sheen)
							4	Light brown SILT w/ 5% fine sand. stiff, low plasticity. (no odor, no sheen)
Dry	1.1						5	
Dry	1.9		SB-13-5	G = <7.2 D = <6.2 HO = <12 B = <0.0013			6	(ML) Light brown SILT w/ gray mottling. hard. (no odor, no sheen)
Dry	1.0				ML		7	Same as above. stiff. (no odor, no sheen)
Dry	1.1						8	Same as above with 15-20% clay. hard, medium plasticity. (no odor, no sheen)
Dry	1.0						9	(CL) Same as above. Clayey SILT. (no odor, no sheen)
Dry	1.8				CL		10	
Dry	0.6				ML		11	(ML) Light brown to gray SILT. stiff, medium plasticity. (no odor, no sheen)
Dry	1.9						12	Same as above. hard, high plasticity. (no odor, no sheen)
Dry	0.8						13	Light brown SILT w/ 10% clay. (no odor, no sheen)
Dry	1.8				ML		14	(ML) Same as above w/ gray mottling. (no odor, no sheen)
Dry	0.8						15	Light brown SILT. soft, high plasticity. (no odor, no sheen)
Moist	0.6		SB-13-16	G = <10 D = <6.7 HO = <13 B = <0.0017	CL		16	(CL) Gray CLAY w/ 5-10% fine gravel and shell fragments. soft, low plasticity. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

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Bothell, WA 98011

Boring: SB-14

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.99 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	1.5				OL		1	(OL) Light brown to med. brown, fine to medium, organic-rich, sandy SILT. (no odor, no sheen)
							2	
Moist	0.6				CL		3	(CL) Blue-gray CLAY w/ 20% silt. medium plasticity. (no odor, no sheen)
							4	
Moist	0.6		SB-14-5	G = <9.1 D = <6.6 HO = <13 B = <0.0016	ML		5	(ML) Light brown SILT w/ 15% very fine to medium sand. soft, low plasticity. (no odor, no sheen)
Moist	0.5				CL		6	(CL) Light brown, clayey SILT w/ gray mottling. stiff, medium plasticity. (no odor, no sheen)
Moist	0.8						7	Same as above. (no odor, no sheen)
Moist	0.9						8	
Moist	1.2						9	(CL) Same as above. very stiff. (no odor, no sheen)
Moist	0.7				CL		10	
Moist	0.8						11	Same as above. very stiff. (no odor, no sheen)
Moist	1.0						12	
Moist	0.4						13	(ML) Light brown SILT w/ 10% fine sand. soft. (no odor, no sheen)
Moist	0.9				ML		14	
Moist	0.7		SB-14-16	G = <8.2 D = <6.8 HO = <14 B = <0.0013			15	
Moist	0.6				SM		16	(SM) Gray, medium to coarse, silty SAND. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-15A

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: Hand Auger
Total Boring Depth: 1.5 ft
TOC: 43.91 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
								Asphalt. Boring was moved 7 feet west after a pipe was encountered.
Dry	2.7		SB-15-1A	G = 30 D = 1700 HO = 20,000 B = <0.0007	SM		1	(SM) Dark brown, fine to medium, silty SAND w/ 10% gravel. loose. (no odor, slight sheen)
							2	Bottom of borehole at 1.5 feet.

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18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-15B

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.76 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	3.2		SB-15B-1	G = 76 D = 1100 HO = 7300 B = 0.0027	SM		1	(SM) Dark brown, fine to medium, silty SAND w/ 10% gravel, up to 1-inch in diamater. loose. (moderate odor, slight sheen)
							2	
Moist	0.7						3	(ML) Gray-brown SILT w/ 10% fine sand. soft, low plasticity. (no odor, no sheen)
					ML		4	
Moist	0.2						5	Brown SILT w/ gray mottling. 5% fine sand. soft, medium plasticity. (no odor, no sheen)
Moist	0.3		SB-15B-5	G = <8.3 D = 12 HO = 66 B = 0.0043			6	(CL) Brown, clayey SILT w/ gray mottling and 5% fine sand. hard, medium plasticity. (no odor, no sheen)
					CL			
Dry	0.6						7	Same as above. stiff. (no odor, no sheen) soft from 7.5 to 8 feet bgs.
Dry	0.9						8	Brown, clayey SILT. stiff, medium plasticity. (no odor, no sheen)
Dry	0.6						9	(CL) Brown, clayey SILT w/ gray mottling. very stiff, high plasticity. (no odor, no sheen)
					CL			
Dry	1.4						10	Same as above. (no odor, no sheen)
Dry	0.7						11	
Dry	0.9						12	(ML) Brown SILT w/ 10% clay. stiff, medium plasticity. (no odor, no sheen)
					ML			
Dry	0.5						13	Brown SILT w/ 10% clay. hard, medium plasticity. (no odor, no sheen)
Dry	0.9						14	
Dry	1.0		SB-15B-16	G = <6.6 D = <6.8 HO = <14 B = 0.0018			15	(CL) Brown, clayey SILT w/ gray mottling. stiff, high plasticity. (no odor, no sheen)
Moist	0.7				CL			
					SM		16	(SM) Gray, fine to coarse, silty SAND w/ 10% gravel. loose. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-16

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/9/2010
Date Completed: 3/9/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.31 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	0.4				SM		1	(SM) Light brown, fine to medium, silty SAND w/ 10% coarse gravel and organic material. (slight odor, slight sheen)
							2	
Moist	49		SB-16-3	G = 26 D = <7.0 HO = <14 B = 0.17	ML		3	(ML) Light brown SILT w/ 10% fine to medium sand. soft. (strong odor, no sheen)
							4	
Moist	683							Same as above. (moderate odor, no sheen)
Moist							5	
Moist	0.0						6	Light brown SILT w/ gray mottling. 10% clay. stiff, medium plasticity. (strong odor, slight sheen)
Moist	0.0		SB-16-7	G = 910 D = <6.9 HO = <14 B = 4	ML		7	(ML) Same as above. (moderate odor, no sheen)
Moist	0.0						8	Same as above. (no odor, no sheen)
Moist	0.0						9	
Moist	0.0						10	
Moist	0.0						11	(ML) Light brown to gray SILT w/ 10% fine sand. soft. (no odor, no sheen)
Moist	0.0				ML		12	
Moist	0.0						13	Same as above. (no odor, no sheen)
Moist	0.0						14	
Moist	0.0		SB-16-16	G = <9.6 D = <7.8 HO = <16 B = <0.0015			15	Gray SILT w/ 10% fine sand. (no odor, no sheen)
Moist	0.0				SM			(SM) Gray, medium to coarse, silty SAND w/ 10% medium to coarse gravel. (no odor, no sheen)
							16	Bottom of borehole at 16.0 feet.
							17	

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Boring: SB-17

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.14 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	2.4				SM/ML		1	(SM/ML) Light brown, sandy SILT/silty SAND. loose. (no odor, no sheen)
							2	
Moist	352				ML		3	(ML) Dark brown to gray SILT. soft. (no odor, slight sheen)
							4	
Moist	54						5	Same as above. (no odor, slight sheen)
Moist	2.4		SB-17-5	G = 1,200 D = 14 HO = 21 B = 4.5			6	(ML) Brown SILT w/ gray streaking. 10% clay. hard, low plasticity. (no odor, no sheen)
Moist	3.3				ML		7	
Dry	0.7						8	Same as above. very stiff. (no odor, no sheen)
Dry	1.1						9	(CL) Brown, clayey SILT w/ gray streaking. hard. (no odor, no sheen)
Dry	1.9				CL		10	
Moist	1.4						11	Same as above. very stiff, high plasticity. (no odor, no sheen)
Dry	1.4				ML		12	(ML) Brown SILT w/ 5% clay. stiff, low plasticity. (no odor, no sheen)
Moist	0.7						13	(CL) Brown, clayey SILT. soft, high plasticity. (no odor, no sheen)
Moist	1.3				CL		14	
Dry	1.0		SB-17-16	G = <9.6 D = <7.9	ML		15	(ML) Brown SILT w/ 10% clay. soft, medium plasticity. (no odor, no sheen)
Moist	1.1			HO = <16 B = <0.0013	SP		16	(SP) Gray to brown, fine to medium sand w/ <5% silt and < 5% gravel. 1" band of shell fragments at 15.5 feet bgs. dense. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

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18912 North Creek Parkway
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Boring: SB-18

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 19 ft
TOC: 43.27 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	1736				SM		1	(SM) Gray, fine to medium SAND w/ 10% coarse sand, 10% gravel and 5% silt. loose. (strong odor, moderate sheen)
							2	
Wet	2250						3	Gray, fine to medium SAND w/ 5% coarse sand and gravel. loose. (strong odor, heavy sheen)
							4	
Wet	NM						5	Gray, fine to medium SAND w/ 5% silt and 5% subrounded cobbles. (strong odor, heavy sheen) light non-aqueous phase liquid observed.
			SB-18-5	G = 52,000 D = 1100 HO = <110 B = 290	ML			(ML) Brown SILT w/ gray streaking. 20% clay and <5% very fine sand. very stiff, medium plasticity. (slight odor, no sheen)
Moist	556						6	
Moist	138				CL		7	(CL) Light brown, clayey SILT w/ gray streaking. very stiff, medium plasticity. (slight odor, no sheen)
Moist	86.5						8	Same as above. stiff, high plasticity. (no odor, no sheen)
Moist	134						9	Same as above. stiff, high plasticity. (no odor, no sheen)
Moist	44		SB-5-10	G = 97 D = <6.2 HO = <12 B = 3.8			10	Same as above. (no odor, no sheen)
Moist	112				CL		11	(CL) Brown, clayey SILT. stiff, medium plasticity. (no odor, no sheen)
Moist	102				ML		12	(ML) Brown SILT w/ 15% clay. soft, medium plasticity. (no odor, no sheen)
Wet	33.5						13	Brownish-gray SILT w/ 10% clay. very soft, medium plasticity. (no odor, no sheen)
Moist	171						14	Gray SILT w/ 5% fine sand, 5% clay and <5% shell fragments. (moderate odor, slight sheen)
Wet	20.8				SP		15	(SP) Gray, fine to coarse SAND w/ 10% silt and <5% angular gravel to 0.5 inches. dense. (no odor, no sheen)
Moist	64.1						16	Gray, fine to coarse SAND w/ 20% angular gravel. (no odor, no sheen)
Moist	7.4						17	
Moist	24.2		SB-5-19	G = 86 D = <5.3 HO = <10 B = 0.39	SP		18	(SP) Gray, fine to coarse SAND w/ 5% rounded gravel. dense. (no odor, no sheen)
Moist	15.9						19	Brown, fine to medium SAND w/ < 5% silt. loose. (no odor, no sheen)
							20	Bottom of borehole at 19.0 feet.

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Bothell, WA 98011

Boring: SB-19

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.29 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	2.4				ML		1	(ML) Dark brown to gray SILT w/ 15% clay and 10% very fine sand. soft, medium plasticity. (no odor, no sheen)
							2	
Moist	1234						3	Light brown SILT. soft, medium plasticity. (moderate odor, slight sheen)
							4	
Moist	958						5	Same as above. (strong odor, moderate sheen)
Moist	0.3		SB-19-5	G = 220 D = 18 HO = <12 B = 0.69	ML		6	(ML) Same as above w/ <5% clay. very stiff, medium plasticity. (no odor, no sheen)
Moist	0.6						7	Same as above w/ 15% clay. stiff. (no odor, no sheen)
Moist	2.8						8	
Dry	9.6				CL		9	(CL) Light brown, clayey SILT w/ gray mottling. hard. (no odor, no sheen)
Dry	576		SB-19-10	G = 1000 D = <6.2 HO = <12 B = 2.2			10	Same as above. (moderate odor, no sheen)
Miost	85.8						11	Same as above. soft. (no odor, no sheen)
Dry	28.9				CL		12	(CL) Brown, clayey SILT. soft, high plasticity. (no odor, no sheen)
Moist	1.5						13	Brown, clayey SILT. stiff, high plasticity. (no odor, no sheen)
Moist	1.4						14	
Moist	0.3		SB-19-16	G = 67 D = <6.0 HO = 17 B = 0.23			15	Gray, clayey SILT. soft, medium plasticity. (no odor, no sheen)
Moist							16	Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-20

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 17 ft
TOC: 43.20 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
					FILL		1	(FILL) FILL. Large cobbles. No sample recovery.
							2	
Moist	42						3	(ML) Gray SILT. stiff, medium plasticity. (slight odor, slight sheen)
					ML		4	
Moist	173						5	
			SB-20-5	G = 60 D = <6.4 HO = <13 B = 0.16				Gray to brown SILT w/ 10-20% fine sand. soft, low plasticity. (no odor, no sheen)
Dry	0.9						6	(ML) Brown SILT w/ gray mottling. hard, low plasticity. (no odor, no sheen)
					ML			
Dry	0.5						7	Brown SILT w/ 10-20% clay. stiff, high plasticity. (no odor, no sheen)
Dry	3.7						8	
Dry	0.4						9	Brown SILT. hard, high plasticity. (no odor, no sheen)
Dry	1.3						10	
Dry	0.8						11	(ML) Brown SILT w/ 20% clay. stiff, high plasticity. (no odor, no sheen)
Dry	1.4				ML		12	
Dry	1.1						13	(CL) Brown, clayey SILT. stiff, high plasticity. (no odor, no sheen)
Dry	0.7		No Recovery		CL		14	
							15	
Dry	0.5		SB-20-16	G = <6.8 D = <5.2 HO = <10 B = <0.0008	SP		16	(SP) Gray to brown, poorly sorted, fine to coarse SAND w/ 10-15% subrounded gravel. dense. (no odor, no sheen)
							17	Bottom of borehole at 17.0 feet.
							18	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-21

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 41.92 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	7.8				SM		1	(SM) Gray, fine to coarse, silty SAND w/ gravel. loose. (slight odor, slight sheen)
							2	
Moist	6.7				CL		3	(CL) Light brown to gray, clayey SILT. soft, medium plasticity. (no odor, no sheen)
							4	
Wet	78.6						5	Same as above. (slight odor, slight sheen)
			SB-21-5	G = 100 D = <6.8 HO = <14 B = 3.7				
Moist	0.0						6	(CL) Dark gray, clayey SILT. hard, high plasticity. (slilght odor, no sheen)
Moist	0.0				CL		7	
Moist	0.0						8	(ML) Dark brown to gray SILT w/ 10% clay. hard, medium plasticity. (no odor, no sheen)
Moist	0.0				ML		9	
Moist	0.0						10	Light to dark brown SILT. very hard, high plasticity. (no odor, no sheen)
			No Recovery				11	
							12	
							13	
							14	
Moist	0.0				CL		15	(CL) Light brown, clayey SILT w/ 10% fine sand. stiff, high plasticity. (no odor, no sheen)
Moist	0.0		SB-21-16	G = <8.6 D = <6.5 HO = <13 B = 0.0036				
					SP		16	(SP) Gray, fine to coarse SAND w/ brown oxidation. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

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18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-22

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/10/2010
Date Completed: 3/10/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.34 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
					FILL		1	(FILL) FILL. No sample recovery at 1 foot bgs. Cobbles encountered.
							2	
Moist	1502						3	(ML) Light brown to gray SILT w/ 20% fine to medium sand. soft. (strong odor, slight sheen)
					ML		4	
Moist	810						5	Same as above. (strong odor, no sheen)
Moist	331		SB-22-5	G = 4,400 D = 50 HO = <13 B = 5			6	Same as above w/ 10% fine to medium sand. stiff. (strong odor, slight sheen)
Moist	219						7	
Moist	422		SB-22-8	G = 740 D = 48 HO = <14 B = 11			8	
Moist	422						9	Light brown to gray SILT w/ 10% fine sand. (strong odor, slight sheen)
Moist	63.8						10	
			No Recovery				11	(SW) Gray, medium to coarse, well graded SAND w/ 10% silt. (slight odor, no sheen)
					SW		12	
Moist	148						13	
Moist	29.7						14	(ML) Light gray, sandy SILT w/ 20% coarse rounded gravel. (slight odor, no sheen)
					ML			
Moist	84		SB-22-15	G = 1,400 D = 58 HO = <13 B = 3.6			15	Light brown to gray, sandy SILT w/ 20% gravel. (strong odor, no sheen) Refusal encountered at 16 feet bgs.
Moist	3367						16	
								Bottom of borehole at 16.0 feet.
							17	

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Bothell, WA 98011

Boring: SB-23

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/11/2010
Date Completed: 3/11/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 41.56 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	18				SP			(SP) Light brown, medium to coarse SAND w/ <5% gravel. (slight odor, slight sheen)
							1	
					ML			(ML) Gray SILT w/ 10% fine to medium sand. (slight odor, no sheen)
							2	
Moist	292							Same as above. soft, medium plasticity. (slight odor, slight sheen)
							3	
Moist	199.6		SB-23-4	G = 15,000 D = 170 HO = 42 B = 5.1			4	Light brown to gray SILT w/ fine to medium sand and minor organic material. (strong odor, slight sheen)
Wet	292							
							5	(ML) Light brown to gray SILT w/ 5% fine to medium SAND. stiff, low plasticity. (moderate odor, slight sheen)
					ML			
Moist	0.0						6	Brown to gray SILT w/ 10% clay. hard, medium plasticity. (slight odor, no sheen)
Moist	0.0						7	Brown to gray SILT w/ some brown mottling. 10% clay. hard, medium plasticity. (no odor, no sheen)
Moist	0.0		SB-23-8	G = <8.1 D = <6.6 HO = <13 B = 0.039			8	(ML) Brown SILT w/ <5% clay. soft, low plasticity. (no odor, no sheen)
					ML			
Moist	0.0						9	Brown SILT w/ 15% clay. stiff. (no odor, no sheen)
Wet	0.0						10	
								(CL) Light brown, clayey SILT. very stiff, high plasticity. (no odor, no sheen)
Wet	8.0				CL		11	
Wet	0.0						12	Light brown, clayey SILT. very stiff, high plasticity. (no odor, no sheen)
Wet	0.0						13	Light brown, clayey SILT. stiff, high plasticity. (no odor, no sheen)
							14	(CL) Same as above. stiff, moderate plasticity. (no odor, no sheen)
					CL			
Wet	0.0		SB-23-16	G = <10 D = <7.4 HO = <15 B = 0.001			15	
					SM			(SM) Gray, fine to medium, silty SAND w/ 20% shell fragments and 5% gravel. loose. (no odor, no sheen)
							16	Bottom of borehole at 16.0 feet.
							17	

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18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-24

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/12/2010
Date Completed: 3/12/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 43.96 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	1.3				SP		1	(SP) Brown, fine to medium SAND w/ 10% silt and <5% subrounded gravel to 0.5 inches. loose. (no odor, no sheen)
							2	(ML) Brown SILT. soft, low plasticity. (no odor, no sheen)
Dry	2.0				ML		3	
							4	Same as above. soft, low-medium plasticity. (no odor, no sheen)
Dry	18.9						5	
			SB-24-5	G = 12 D = <6.4 HO = <13 B = 0.0056				
Dry	9.7						6	(ML) Brown SILT w/ 5% clay. stiff, low plasticity. (no odor, no sheen)
					ML			
Moist	153						7	Dark brown SILT w/ 10% clay. stiff, low-medium plasticity. (no odor, slight sheen)
Moist	15.4						8	(CL) Brown SILT w/ 15-20% clay. very stiff, high plasticity. (no odor, no sheen)
			SB-24-8	G = 23 D = <7 HO = <14 B = 0.022				
Moist	2.2				CL		9	
Dry	1.8						10	(ML) Brown SILT w/ 15% clay. very stiff, medium plasticity. (no odor, no sheen)
			No Recovery		ML		11	
							12	Brown SILT w/ < 5% sand. hard, low plasticity. (no odor, no sheen)
							13	
Moist	1.8						14	
Moist	2.1			G = <4.7 D = <5.2 HO = <10 B = <0.0009	SM		15	(SM) Gray, fine to medium, silty SAND. dense. (no odor, no sheen)
Dry	2.7		SB-24-16		ML		16	(ML) Gray SILT w/ degraded granite and 5% very fine sand. very hard, low plasticity. (no odor, no sheen)
								Bottom of borehole at 16.0 feet.
							17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-25

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/12/2010
Date Completed: 3/12/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 42.97 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	DEPTH (ft)	LITHOLOGY/DESCRIPTION
						0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	0.6				ML	1	(ML) Dark to light brown, sandy SILT w/ 15% fine to medium sand and organic material. (no odor, no sheen)
						2	
Moist	0.0					3	(ML) Light brown to gray SILT. soft, low plasticity. (no odor, no sheen)
						4	
Wet	2.0				ML		
Moist			SB-25-5	G = <9.7 D = 11 HO = 68 B = <0.0016		5	
Dry	0.9					6	Brown SILT w/ gray mottling. 5% clay. stiff, medium plasticity. (no odor, no sheen)
Dry	1.4					7	
Moist	2.8				ML	8	(ML) Brown SILT w/ 15% clay. very stiff, high plasticity. (no odor, no sheen)
Moist	2.4				CL	9	(CL) Brown, clayey SILT. very stiff, high plasticity. (no odor, no sheen)
Dry	3.1				ML	10	(ML) Brown SILT w/ 5% clay. stiff, low plasticity. (no odor, no sheen)
Dry	2.2				SM	11	(SM) Brown, fine to medium, silty SAND w/ 10% angular gravel to 1". (no odor, no sheen)
					SP		(SP) Orange, coarse SAND.
Miost	2.5				SM/ML	12	(SM/ML) Brown, fine to med. sandy SILT/silty SAND w/ 5% clay and gravel. (no odor, no sheen)
Dry	2.4				SM	13	(SM) Dark gray, silty SAND w/ 10% subrounded to angular gravel. (no odor, no sheen)
Dry	2.2					14	(SM) Same as above w/ no gravel. (no odor, no sheen)
Dry	2.1		SB-25-16	G = <5.3 D = <5.2 HO = <10 B = <0.0008	SM	15	
Dry	1.6				ML		(ML) Dark brown-gray SILT w/ 10% sand. hard, low plasticity. (no odor, no sheen)
						16	Bottom of borehole at 16.0 feet.
						17	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-26

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/12/2010
Date Completed: 3/12/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 14 ft
TOC: 40.96 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
Moist	1.5				SM		1	(SM) Gray, silty SAND W 20% gravel. loose. (no odor, no sheen)
							2	
Moist	0.6						3	(ML) Dark brown SILT w/ 15% rounded gravel and 10% fine sand and organic material. (organic odor, organic sheen)
					ML		4	
Wet			SB-26-5	G = <7.3 D = <6.7 HO = <14 B = <0.0013			5	Same as above w/ organic material and wood debris. (organic odor, no sheen)
Wet	1.2						6	(ML) Brown SILT w/ 10-15% clay. stiff, med. plasticity. (no odor, no sheen)
Wet	0.8				ML		7	
Moist	3.6						8	Same as above. stiff. (no odor, no sheen)
Moist	2.2						9	(CL) Brown, clayey SILT. stiff, high plasticity. (no odor, no sheen)
Dry	3.6		No Recovery		CL		10	
							11	
							12	
Moist	0.5		SB-26-14	G = <10 D = <6.8 HO = <14 B = <0.0017			13	Brown, clayey SILT. high plasticity. Refusal @ 14 feet. (no odor, no sheen)
							14	Bottom of borehole at 14.0 feet.
							15	

18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-27

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/12/2010
Date Completed: 3/12/2010

Driller: Cascade Drillling
Drill Method: Hand Auger
Total Boring Depth: 2.33333 ft
TOC: 41.65 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt
Dry	0.0				SP		1	(SP) Brown, fine to medium SAND w/ 20% coarse sand, 10% subrounded gravel and 5% silt. loose. (no odor, no sheen). refusal at 28 inches, cobbles encountered.
							2	
							3	Bottom of borehole at 2.3 feet.

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18912 North Creek Parkway
Bothell, WA 98011

Boring: SB-28

Project: Blaine Mini Mart
Client: Washington Department of Ecology
Location: 2530 Peace Portal Dr., Blaine, WA

Logged By: AJW/APL
Date Started: 3/12/2010
Date Completed: 3/12/2010

Driller: Cascade Drillling
Drill Method: HA / Direct Push
Total Boring Depth: 16 ft
TOC: 42.70 ft

MOISTURE CONTENT	ORGANIC VAPOR (ppm)	SAMP. INTERVAL	ANALYTICAL SAMPLE	Analyical Results (mg/kg)	U.S.C.S. SYMBOL	GRAPHIC LOG	DEPTH (ft)	LITHOLOGY/DESCRIPTION
							0	Asphalt. Boring was cleared by hand auger to 5 feet bgs.
								Concrete
Moist	0.0				OL		1	(OL) Dark brown organic SILT.
								(ML) Light brown SILT w/ gray streaking. 10% clay. stiff, medium plasticity. (no odor, no sheen)
					ML		2	
Moist	0.0						3	Gray SILT w/ orange mottling and brown streaking. 15% clay. stiff, high, plasticity. (no odor, no sheen)
							4	
Moist	0.0							
			SB-28-5	G = <9.1 D = <6.8 HO = <14 B = <0.0013	CL		5	(CL) Brown, clayey SILT. stiff, medium plasticity. (no odor, no sheen)
Moist	0.0						6	Brown, clayey SILT. very stiff, high plasticity. (no odor, no sheen)
							7	
								Same as above w/ gray mottling. very stiff. (no odor, no sheen)
Dry	0.0						8	
					ML			(ML) Brown SILT w/ 10% clay. hard. (no odor, no sheen)
Dry	0.0						9	(CL) Brown, clayey SILT. stiff, high plasticity. (no odor, no sheen)
Dry	0.0						10	
					CL			
Moist	0.0						11	
Moist	0.0						12	(CL) Brown, clayey SILT w/ reddish orange streaking. soft, high plasticity. (no odor, no sheen)
					CL			
Moist	0.0						13	Brown, clayey SILT. soft, high plasticity. (no odor, no sheen)
Moist	0.0						14	
Moist	0.0						15	
Moist	0.0		SB-28-16	G = <11 D = <7.3 HO = <15 B = <0.0017	CL			(CL) Same as above. stiff. (no odor, no sheen)
							16	Bottom of borehole at 16.0 feet.
							17	

Appendix D
Laboratory Report and Chain-of-Custody Records – March 2010

Appendix D
Laboratory Report and Chain-of-Custody Records – March 2010

EcoChem, INC.
Environmental Data Quality

DATA VALIDATION REPORT

BLAINE MINI MART

Prepared for:

SAIC
18912 North Creek Parkway, Suite 101
Bothell, Washington 98011

Prepared by:

EcoChem, Inc.
710 Second Avenue, Suite 660
Seattle, Washington 98104

EcoChem Project: C4139-1

April 27, 2010

Approved for Release

Lucy Panteleeff

Lucy Panteleeff
Project Manager
EcoChem, Inc.

PROJECT NARRATIVE

Basis for Data Validation

This report summarizes the results of validation performed on soil, sediment, water, and quality control (QC) sample data for the Blaine Mini Mart – Blaine, Washington. A complete list of samples is provided in the **Sample Index**.

Samples were analyzed by Analytical Resources Inc., Tukwila, Washington. The analytical methods and EcoChem project chemists are listed below:

Analysis	Method of Analysis	Primary Review	Secondary Review
Volatile Organic Compounds	SW8260C	Lucy Panteleeff	Melissa Swanson
Polycyclic Aromatic Hydrocarbons	SW8270D-SIM		
Polychlorinated Biphenyls – Aroclors	SW8082	Megan Kilner	
Total Petroleum Hydrocarbons - Diesel	NWTPH-Dx	Lucy Panteleeff	
Total Petroleum Hydrocarbons - Gasoline	NWTPH-Gx		
Lead	SW6010B	Megan Kilner	Chris Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical method; *Blaine Mini Mart – Sampling and Analysis Plan and Quality Assurance Project Plan* (March 2010); *USEPA National Functional Guidelines for Inorganic Data Review* (EPA, 2004); and *USEPA National Functional Guidelines for Organic Data Review* (EPA, 1999).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as **Appendix A**. A Qualified Data Summary Table is included as **Appendix B**. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified electronic data deliverable (EDD) in the Washington State Department of Ecology Environmental Information Management (EIM) format is also submitted with this report.

Sample Index
SAIC - Blaine Mini Mart

SDG	Sample ID	Lab ID	Matrix	NWTPH-Dx	NWTPH-Gx	Metals	PCB	VOC	SVOC-SIM
QN14	SB-08-6.0	QN14A	Solid/Sediment	X	X			X	
	SB-08-16	QN14B	Solid/Sediment	X	X			X	
	SB-09-06	QN14C	Solid/Sediment	X	X			X	
	SB-09-16	QN14D	Solid/Sediment	X	X			X	
	SB-10-05	QN14E	Solid/Sediment	X	X			X	
	SB-10-16	QN14F	Solid/Sediment	X	X			X	
	SB-11-06	QN14G	Solid/Sediment	X	X			X	
	SB-11-16	QN14H	Solid/Sediment	X	X			X	
	SB-12-1	QN14I	Solid/Sediment	X	X	X	X	X	
	SB-12-5	QN14J	Solid/Sediment	X	X			X	
	SB-12-16	QN14K	Solid/Sediment	X	X			X	
	SB-13-5	QN14L	Solid/Sediment	X	X			X	
	SB-13-16	QN14M	Solid/Sediment	X	X			X	
	SB-14-5	QN14N	Solid/Sediment	X	X			X	
	SB-14-16	QN14O	Solid/Sediment	X	X			X	
	SB-15-1A	QN14P	Solid/Sediment	X	X			X	
	Trip Blank	QN14Q	Water		X			X	
QN53	SB-15B-1	QN53A	Solid/Sediment	X	X			X	
	SB-15B-5	QN53B	Solid/Sediment	X	X			X	
	SB-15B-16	QN53C	Solid/Sediment	X	X			X	
	SB-18-5	QN53D	Solid/Sediment	X	X	X		X	
	MW-3-3	QN53E	Solid/Sediment	X	X			X	
	SB-18-10	QN53F	Solid/Sediment	X	X			X	
	MW-4-3	QN53G	Solid/Sediment	X	X			X	
	SB-18-19	QN53H	Solid/Sediment	X	X			X	
	MW-3-5	QN53I	Solid/Sediment	X	X			X	
	SB-16-3	QN53J	Solid/Sediment	X	X	X		X	
	MW-3-17	QN53K	Solid/Sediment	X	X	X		X	
	SB-17-5	QN53L	Solid/Sediment	X	X			X	
	SB-19-5	QN53M	Solid/Sediment	X	X			X	
	MW-4-16	QN53N	Solid/Sediment	X	X			X	
	MW-5-5	QN53O	Solid/Sediment	X	X	X		X	
	SB-19-10	QN53P	Solid/Sediment	X	X	X		X	
	SB-19-16	QN53Q	Solid/Sediment	X	X			X	
	SB-21-5	QN53R	Solid/Sediment	X	X	X		X	
	SB-20-5	QN53S	Solid/Sediment	X	X	X		X	
	SB-20-16	QN53T	Solid/Sediment	X	X			X	
QN55	SB-22-5	QN55A	Solid/Sediment	X	X	X		X	
	SB-17-16	QN55B	Solid/Sediment	X	X			X	
	SB-21-16	QN55C	Solid/Sediment	X	X			X	
	SB-16-7	QN55D	Solid/Sediment	X	X			X	
	SB-16-16	QN55E	Solid/Sediment	X	X			X	
	SB-23-4	QN55F	Solid/Sediment	X	X	X		X	
	SB-23-8	QN55G	Solid/Sediment	X	X			X	
	SB-23-16	QN55H	Solid/Sediment	X	X			X	
	SB-22-8	QN55I	Solid/Sediment	X	X	X		X	
	SB-22-15	QN55J	Solid/Sediment	X	X	X		X	
	MW-5-16	QN55K	Solid/Sediment	X	X			X	
	ER-031110-1	QN55L	Water	X	X	X		X	X
	Trip Blank	QN55M	Water		X			X	

Sample Index
SAIC - Blaine Mini Mart

SDG	Sample ID	Lab ID	Matrix	NWTPH-Dx	NWTPH-Gx	Metals	PCB	VOC	SVOC-SIM
QO08	Trip Blank	QO08A	Water		X			X	
	SB-24-5	QO08B	Solid/Sediment	X	X			X	
	SB-25-5	QO08C	Solid/Sediment	X	X			X	
	SB-25-16	QO08D	Solid/Sediment	X	X			X	
	SB-24-8	QO08E	Solid/Sediment	X	X			X	
	SB-24-16	QO08F	Solid/Sediment	X	X			X	
	SB-26-5	QO08G	Solid/Sediment	X	X			X	
	SB-26-14	QO08H	Solid/Sediment	X	X			X	
	SB-28-5	QO08I	Solid/Sediment	X	X			X	
	SB-28-16	QO08J	Solid/Sediment	X	X			X	
QP09	MW-5-031710	QP09A	Water	X	X	X		X	X
	MW-5-031710-FD	QP09B	Water	X	X	X		X	X
	MW-1-031710	QP09C	Water	X	X	X		X	X
	MW-4-031710	QP09D	Water	X	X	X		X	X
	MW-3-031710	QP09E	Water	X	X	X		X	X
	MW-2-031810	QP09F	Water	X	X	X		X	X
	Trip Blanks	QP09G	Water		X			X	
	MW-5-031710	QP09H	Water			X			
	MW-5-031710-FD	QP09I	Water			X			
	MW-1-031710	QP09J	Water			X			
	MW-4-031710	QP09K	Water			X			
	MW-3-031710	QP09L	Water			X			
	MW-2-031810	QP09M	Water			X			

DATA VALIDATION REPORT
Blaine Mini Mart Water Sampling
Volatile Organic Compounds by SW846 Method 8260C

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QP09	6 Water & 1 Trip Blank	Full Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation	1	Field Duplicate
	Initial Calibration (ICAL)		Internal Standards
2	Continuing Calibration (CCAL)		Target Analyte list
	Laboratory Blanks	1	Reporting Limits
1	Field Blanks		Compound Identification
	Surrogate Compounds		Reported Results
	Laboratory Control Samples (LCS)	1	Calculation Verification
	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Continuing Calibration

All values for the relative response factor (RRF) values were greater than the 0.05 minimum control limits. The values for %D were within the ±25% control limits, with the exceptions noted below.

SDG QP09: The CCAL was analyzed on 3/24/10 instrument NT10. The %D value for methyl tert

butyl ether was outside control limits and indicated a potential low bias. This analyte was estimated (UJ-5B) in four samples.

Field (Equipment Rinsate and Trip) Blanks

SDG QP09*:* One trip blank, TB-031710-01, was submitted. No target analytes were detected in this sample.

Field Duplicates

The control limit for relative percent difference (RPD) is 35% for results greater than five times (5x) the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and duplicate must be less than two times (2x) the RL.

SDG QP09: Samples MW-5-031710 & MW-5-031710-FD were identified as field duplicates. All RPD values were less than the control limit.

Reporting Limits

SDG QP09: Samples MW-4-031710 and MW2-031810 were analyzed at dilution (100x &500x); reporting limits were elevated accordingly.

Calculation Verification

SDG QP09: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery values. Precision was also acceptable as demonstrated by the LCS/LCSD and field duplicate RPD values.

Data were qualified due to continuing calibration outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Soil Sampling
Volatile Organic Compounds by SW846 Method 8260C

This report documents the review of analytical data from the analyses of soil samples and the associated laboratory and field quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QN14	16 Soil & 1 Trip Blank	Full Screening
QN53	20 soil	Summary
QN55	11 Soil, 1 Equipment Blank & 1 Trip Blank	Summary Screening
QO08	9 Soil & 1 Trip Blank	Summary Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Holding Times and Sample Preservation	1	Field Duplicate
	Initial Calibration (ICAL)		Internal Standards
	Continuing Calibration (CCAL)		Target Analyte list
	Laboratory Blanks		Reporting Limits
1	Field Blanks		Compound Identification
	Surrogate Compounds	1	Reported Results
1	Laboratory Control Samples (LCS)	1	Calculation Verification
	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)		

[1] ***Quality control results are discussed below, but no data were qualified.***

Sample Preservation and Holding Times

The validation guidance documents state that the cooler temperatures should be within an advisory temperature range of 2°C to 6°C. The laboratory received a sample cooler with a temperature outside control limits (0.9°C). This temperature outlier did not impact data quality and no qualifiers were assigned.

Field (Equipment Rinsate and Trip) Blanks

***SDG QN14**:* One trip blank, TB-030910-1, was submitted. No target analytes were detected in this sample.

SDG QN55: One trip blank, TB-2-031110, and one equipment rinse, ER-031110-1, were submitted. No target analytes were detected in these samples.

SDG QO08: One trip blank, TB-031210-3, was submitted. No target analytes were detected in this sample.

Laboratory Control Samples

SDG QN55: The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery (%R) values for methyl tert-butyl ether were greater than the upper control limit. This analyte was not detected in the associated samples; no qualifiers were applied.

Field Duplicates

A field duplicate sample was not submitted.

Reported Results

SDG QN55: The analyte m,p-xylene exceeded the linear calibration range in Sample SB-23-8. The laboratory reanalyzed the sample at dilution to bring the concentration into linear range. The data for both analyses were reported in the hardcopy, however only the dilution result for this analyte was included in the EDD. No qualifiers were necessary as only one result was reported for each analyte in this sample.

SDG QO08: Analytes ethylbenzene and m,p-xylene exceeded the linear calibration range in Sample SB-24-8. The laboratory reanalyzed the sample at dilution to bring the concentration of these compounds into linear range. The data for both analyses were reported in the hardcopy, however only the dilution results were included in the EDD. No qualifiers were necessary as only one result was reported for each analyte in this sample.

Calculation Verification

SDG QN14: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate, matrix spike/ matrix spike duplicate (MS/MSD), and LCS/LCSD percent recovery values, with the exception noted above. Precision was also acceptable as demonstrated by the MS/MSD and LCS/LCSD relative percent deviation values.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Water Sampling
Semivolatile Organic Compounds by SW846 Method 8270D-SIM

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Refer to the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QN55	1 Equipment Rinsate	Screening
QP09	6 Water	Full

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation		Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	Initial Calibration (ICAL)	2	Field Duplicates
	Continuing Calibration (CCAL)	1	Internal Standards
	Laboratory Blanks		Target Analyte List
1	Field Blanks	1	Reporting Limits
2	Surrogate Compounds	1	Reported Results
1	Laboratory Control Sample (LCS/LCSD)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Field (Equipment Rinsate) Blanks

SDG QN55*:* One equipment rinsate blank, ER-031110-1, was submitted. No target analytes were detected in this sample.

Surrogate Compounds

SDG QP09: The percent recovery (%R) value for surrogate d10-2-methylnaphthalene was less than the lower control limit in the initial analysis of Sample MW-2-031810. Results from this analysis were estimated (J/UJ-13).

Surrogates were not recovered from the re-analysis of Sample MW-2-031810 because it was analyzed at dilution (1000x); no qualifiers were required.

Laboratory Control Samples

SDG QN55: The laboratory control sample (LCS/LCSD) %R value for chrysene was less than the lower control limit. No qualifiers were applied for this single outlier.

Field Duplicates

The control limit for relative percent difference (RPD) is 35% for results greater than five times (5x) the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and duplicate must be less than two times (2x) the RL.

SDG QP09: Samples MW-5-031710 & MW-5-031710-FD were submitted as field duplicates. The RPD values for eight analytes were above the control limit. These analytes were estimated (J/UJ-9) in the associated samples.

Internal Standards

SDG QP09: The recovery for the internal standard napthalene-d8 was greater than the 200% control limit in Sample MW-2-031810. The associated analytes were over the calibration range in the initial analysis and were reported from the dilution. No qualifiers were required for these compounds.

Reporting Limits

SDG QP09: Samples MW-5-031710 (3x), MW-5-031710-FD (20x), MW-4-031710 (5x) and MW2-031810 (10x, 1000x) were analyzed at dilution. Reporting limits were elevated accordingly.

Reported Results

SDG QP09: The target analytes naphthalene, 2-methylnaphthalene and 1-methylnaphthalene in Sample MW-2-031810 exceeded the linear range. The laboratory analyzed the sample at dilution

(1000x) to bring the concentration of these compounds into linear range. The data for both analyses were reported in the hardcopy, however only the usable results were included in the EDD. No qualifiers were necessary as only one result was reported for each analyte in each sample.

Calculation Verification

SDG QP09: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD %R values, with the exceptions noted above. Precision was also acceptable as demonstrated by the LCS/LCSD and field duplicate relative percent difference values, with exceptions noted above.

Data were qualified due to surrogate and field duplicate outliers.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Soil Sampling
PCB Aroclors by SW846 Method 8082

This report documents the review of analytical data from the analyses of a soil sample and the associated field and laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a list of samples that were reviewed.

SDG	Number of Samples	Validation Level
QN14	1 soil	Full

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. Sample cleanup procedures were documented as being performed (Method 3550B). No GPC clean-up was performed. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%).

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation		Reference Material
	Initial Calibration (ICAL)		Internal Standards
	Continuing Calibration (CCAL)	1	Field Duplicates
	Laboratory Blanks		Target Analyte list
	Field Blanks	1	Reporting Limits
	Surrogate Compounds		Compound Identification
	Laboratory Control Samples (LCS)	1	Reported Results
1	Matrix Spikes/Matrix Spike Duplicate (MS/MSD)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***

Matrix Spike/Matrix Spike Duplicates

SDG QN14: The matrix spike/matrix spike duplicate (MS/MSD) was analyzed using sample SB-12-1. The percent recovery (%R) values were greater than the upper control limit for Aroclor 1016. This analyte was not detected in the parent sample; no qualifiers were applied.

Field Duplicates

A field duplicate sample was not submitted.

Reporting Limits

SDG QN14: Sample SB-12-1 was analyzed at dilution (5x). Reporting limits were elevated accordingly.

Calculation Verification

SDG QN14: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory performed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, MS/MSD and laboratory control sample (LCS) percent recovery values. Precision was acceptable as demonstrated by the relative percent difference values for the MS/MSD analyses.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Water Sampling
Diesel and Residual Range Hydrocarbons - Method NWTPH-Dx

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Refer to the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QP09	6 Water	Full

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation		Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	Initial Calibration (ICAL)	1	Field Duplicates
	Continuing Calibration (CCAL)		Target Analyte List
	Laboratory Blanks		Reporting Limits
1	Field Blanks		Compound Identification
	Surrogate Compounds		Reported Results
	Laboratory Control Sample (LCS/LCSD)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Field (Equipment Rinsate) Blanks

SDG QP09: No field blanks were identified with this SDG.

Field Duplicates

The control limit for relative percent difference (RPD) is 35% for results greater than five times (5x) the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and duplicate must be less than two times (2x) the RL. No data were qualified based on field duplicate precision outliers.

SDG QP09: Samples MW-5-031710 & MW-5-031710-FD were identified as field duplicates. All RPD values were less than the control limit.

Calculation Verification

SDG QP09: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the LCS/LCSD and field duplicate RPD values.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Soil Sampling
Diesel and Residual Range Hydrocarbons - Method NWTPH-Dx

This report documents the review of analytical data from the analyses of soil samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Refer to the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QN14	16 Soil	Full
QN53	20 Soil	Summary
QN55	11 Soil & 1 Equipment Blank	Summary Screening
QO08	9 Soil	Summary

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- 1 Holding Times and Sample Preservation
- Initial Calibration (ICAL)
- Continuing Calibration (CCAL)
- Laboratory Blanks
- 1 Field Blanks
- Surrogate Compounds
- Laboratory Control Sample (LCS/LCSD)
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- 1 Field Duplicates
- Target Analyte List
- 1 Reporting Limits
- Compound Identification
- Reported Results
- 1 Calculation Verification

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[1] ***Quality control results are discussed below, but no data were qualified.***

Holding Times and Sample Preservation

The validation guidance documents state that the cooler temperature should be within an advisory temperature range of 2° to 6°C. The laboratory received sample a cooler with a temperature outside control limits (0.9°C). This temperature outlier did not impact data quality and no qualifiers were assigned.

Field (Equipment Rinsate) Blanks

SDG QN55: One equipment rinse, ER-031110-1, was submitted. No target analytes were detected in this sample.

Field Duplicates

A field duplicate sample was not submitted.

Reporting Limits

SDG QN14: Samples, SB-12-1 and SB-15-1A, were analyzed at dilution (25x & 50x). Reporting limits were elevated accordingly.

Calculation Verification

SDG QN14: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, matrix spike/matrix spike duplicate (MS/MSD), and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the MS/MSD and LCS/LCSD relative percent difference values.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Monitor Well Sampling
Gasoline Range Hydrocarbons by Method NWTPH-G

This report documents the review of analytical data from the analyses of water samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Please see the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QP09	6 Water & 1 Trip Blank	Full Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation		Matrix Spike/Matrix Spike Duplicate (MS/MSD)
	Initial Calibration (ICAL)	1	Field Duplicates
	Continuing Calibration (CCAL)		Target Analyte List
	Laboratory Blanks	1	Reporting Limits
1	Field Blanks		Compound Identification
	Surrogate Compounds		Reported Results
	Laboratory Control Samples (LCS)	1	Calculation Verification

[1] ***Quality control results are discussed below, but no data were qualified.***

Field (Equipment Rinsate and Trip) Blanks

SDG QP09: One trip blank, TB-031710-01, was submitted. No target analytes were detected in this sample.

Field Duplicates

The control limit for relative percent difference (RPD) is 35% for results greater than five times (5x) the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and duplicate must be less than two times (2x) the RL.

SDG QP09: Samples MW-5-031710 & MW-5-031710-FD were identified as field duplicates. All RPD values were less than the control limit.

Reporting Limits

SDG QP09: Sample MW-2-031810 (50x) was analyzed at dilution. Reporting limits were elevated accordingly.

Calculation Verification

SDG QP09: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, matrix spike/matrix spike duplicate (MS/MSD), and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery values. Precision was also acceptable as demonstrated by the MS/MSD, LCS/LCSD and field duplicate RPD values.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Soil Sampling
Gasoline Range Hydrocarbons by Method NWTPH-G

This report documents the review of analytical data from the analyses of soil samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Please see the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QN14	16 Soil & 1 Trip Blank	Full Screening
QN53	20 Soil	Summary
QN55	11 Soil, 1 Equipment Blank, & 1 Trip Blank	Summary Screening
QO08	9 Soil & 1 Trip Blank	Summary

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables except the extraction bench sheet in SDG QN14. This information was submitted by the laboratory upon request. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1 Holding Times and Sample Preservation
Initial Calibration (ICAL)
Continuing Calibration (CCAL)
Laboratory Blanks
1 Field Blanks
2 Surrogate Compounds
Laboratory Control Samples (LCS)
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
1 Field Duplicates
Target Analyte List
Reporting Limits
Compound Identification
Reported Results
1 Calculation Verification

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[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Holding Times and Sample Preservation

The validation guidance documents state that the cooler temperature should be within an advisory temperature range of 2° to 6°C. The laboratory received sample coolers with temperatures outside control limits (0.9°C). These temperature outliers did not impact data quality and no qualifiers were assigned.

Field (Equipment Rinsate and Trip) Blanks

SDG QN14: One trip blank, TB-030910-1, was submitted. No target analytes were detected in this sample.

SDG QN55: One trip blank, TB-2-031110, and one equipment rinse, ER-031110-1, were submitted. No target analytes were detected in these samples.

SDG QO08: One trip blank, TB-031210-3, was submitted. No target analytes were detected in this sample.

Surrogate Compounds

SDG QN53: The percent recovery (%R) value for trifluorotoluene was greater than the upper lower control limit in Sample SB-18-5. Gasoline was estimated (J-13) in this sample.

Field Duplicates

A field duplicate sample was not submitted.

Calculation Verification

SDG QN14: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

IV. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, matrix spike/matrix spike duplicate (MS/MSD), and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) percent recovery values. Precision was also acceptable as demonstrated by the MS/MSD and LCS/LCSD relative percent difference values.

Data was qualified due to a surrogate outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Monitor Well Sampling
Lead by SW846 Methods 6010B

This report documents the review of analytical data from the analyses of water samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QP09	6 Water (total and dissolved)	Full

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

	Holding Times and Sample Preservation		Laboratory Duplicates
	Initial Calibration		Reference Material
	Calibration Verification		Interference Check Samples
	CRDL Standards		Serial Dilutions
	Laboratory Blanks		ICP-MS Internal Standards
1	Field Blanks		Reporting Limits
	Laboratory Control Samples (LCS)		Reported Results
	Matrix Spike/Matrix Spike Duplicate (MS/MSD)	1	Calculation Verification
1	Field Duplicates		

[1] ***Quality control results are discussed below, but no data were qualified.***

Field (Equipment Rinsate) Blanks

SDG QP09: No equipment blanks were identified with this SDG.

Field Duplicates

The control limit for relative percent difference (RPD) is 35% for results greater than five times (5x) the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and duplicate must be less than two times (2x) the RL.

SDG QP09: Samples MW-5-031710 & MW-5-031710-FD were identified as field duplicates. All RPD values were less than the control limit.

Calculation Verification

SDG QP09: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

III. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample (LCS) and matrix spike (MS) percent recoveries. Precision was also acceptable as demonstrated by the RPD values for the laboratory and field duplicate analyses.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
Blaine Mini Mart Soil Sampling
Lead by SW846 Methods 6010B

This report documents the review of analytical data from the analyses of soil samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. See the **Sample Index** for a complete list of samples for which data were reviewed.

SDG	Number of Samples	Validation Level
QN14	1 Soil	Full
QN53	7 Soil	Summary
QN55	4 Soil & 1 Equipment Rinse Blank	Summary Screening

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

II. EDD TO HARDCOPY VERIFICATION

A complete (100%) verification of the electronic data deliverable (EDD) results was performed by comparison to the hardcopy laboratory data package. Laboratory QC results were also verified (10%). No errors were found.

III. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

Holding Times and Sample Preservation
Initial Calibration
Calibration Verification
CRDL Standards
Laboratory Blanks
1 Field Blanks
Laboratory Control Samples (LCS)
Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Laboratory Duplicates
Laboratory Duplicates
1 Field Duplicates
Interference Check Samples
Serial Dilutions
ICP-MS Internal Standards
Reporting Limits
Reported Results
1 Calculation Verification

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[1] ***Quality control results are discussed below, but no data were qualified.***

Field Blanks

SDG QN55: One Equipment Rinse, ER-031110-1, was submitted. No target analytes were detected in this sample.

Field Duplicates

A field duplicate sample was not submitted.

Calculation Verification

SDG QN14: Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

III. OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the laboratory control sample (LCS) and matrix spike (MS) percent recoveries. Precision was also acceptable as demonstrated by the relative percent difference values for the laboratory duplicate analyses.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

EcoChem, INC.
Environmental Data Quality

APPENDIX A
DATA QUALIFIER DEFINITIONS REASON CODES AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

1	Holding Time/Sample Preservation
2	Chromatographic pattern in sample does not match pattern of calibration standard.
3	Compound Confirmation
4	Tentatively Identified Compound (TIC) (associated with NJ only)
5A	Calibration (initial)
5B	Calibration (continuing)
6	Field Blank Contamination
7	Lab Blank Contamination (e.g., method blank, instrument, etc.)
8	Matrix Spike(MS & MSD) Recoveries
9	Precision (all replicates)
10	Laboratory Control Sample Recoveries
11	A more appropriate result is reported (associated with “R” and “DNR” only)
12	Reference Material
13	Surrogate Spike Recoveries (a.k.a., labeled compounds & recovery standards)
14	Other (define in validation report)
15	GFAA Post Digestion Spike Recoveries
16	ICP Serial Dilution % Difference
17	ICP Interference Check Standard Recovery
18	Trip Blank Contamination
19	Internal Standard Performance (e.g., area, retention time, recovery)
20	Linear Range Exceeded
21	Potential False Positives
22	Elevated Detection Limit Due to Interference (i.e., laboratory, chemical and/or matrix)

EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Hold Time	Waters: 14 days preserved 7 Days: unpreserved (for aromatics) Solids: 14 Days	J(+)/UJ(-) if hold times exceeded If exceeded by > 3X HT: J(+)/R(-) (EcoChem PJ)	1
Tuning	BFB Beginning of each 12 hour period Method acceptance criteria	R(+/-) all analytes in all samples associated with the tune	5A
Initial Calibration (Minimum 5 stds.)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5A
	%RSD < 30%	(EcoChem PJ, see TM-06) J(+) if %RSD > 30%	5A
Continuing Calibration (Prior to each 12 hr. shift)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5B
	%D <25%	(EcoChem PJ, see TM-06) If > +/-90%: J+/R- If -90% to -26%: J+ (high bias) If 26% to 90%: J+/UJ- (low bias)	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample (+) result is less than CRQL and less than appropriate 5X or 10X rule (raise sample value to CRQL)	7
		U(+) if sample (+) result is greater than or equal to CRQL and less than appropriate 5X and 10X rule (at reported sample value)	7
	No TICs present	R(+) TICs using 10X rule	7
Storage Blank	One per SDG <CRQL	U(+) the specific analyte(s) results in all assoc.samples using the 5x or 10x rule	7
Trip Blank	Frequency as per project QAPP	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned	18
Field Blanks (if required in QAPP)	No results > CRQL	Apply 5X/10X rule; U(+) < action level	6

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EcoChem Validation Guidelines for Volatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One per matrix per batch Use method acceptance criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One per matrix per batch Use method acceptance criteria	J(+) in parent sample if RPD > CL	9
LCS *low conc. H2O VOA*	One per lab batch Within method control limits	J(+) assoc. cmpd if > UCL J(+)/R(-) assoc. cmpd if < LCL J(+)/R(-) all cmpds if half are < LCL	10
LCS *regular VOA (H2O & solid)*	One per lab batch Lab or method control limits	J(+) if %R > UCL J(+)/UJ(-) if %R <LCL J(+)/R(-) if %R < 10% (EcoChem PJ)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	Added to all samples Within method control limits	J(+) if %R >UCL J(+)/UJ(-) if %R <LCL but >10% (see PJ[1]) J(+)/R(-) if <10%	13
Internal Standard (IS)	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	J(+) if > 200% J(+)/UJ(-) if < 50% J(+)/R(-) if < 25% RT>30 seconds, narrate and Notify PM	19
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NJ the TIC unless: R(+) common laboratory contaminants See Technical Director for ID issues	4
Quantitation/ Identification	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	See Technical Director if outliers	14 21 (false +)

PJ[1] No action if there are 4+ surrogates and only 1 outlier.

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EcoChem Validation Guidelines for Semivolatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C ±2°	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Holding Time	Water: 7 days from collection Soil: 14 days from collection Analysis: 40 days from extraction	Water: J(+)/UJ(-) if ext. > 7 and < 21 days J(+)/R(-) if ext > 21 days (EcoChem PJ) Solids/Wastes: J(+)/UJ(-) if ext. > 14 and < 42 days J(+)/R(-) if ext. > 42 days (EcoChem PJ) J(+)/UJ(-) if analysis >40 days	1
Tuning	DFTPP Beginning of each 12 hour period Method acceptance criteria	R(+/-) all analytes in all samples associated with the tune	5A
Initial Calibration (Minimum 5 stds.)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5A
	%RSD < 30%	(EcoChem PJ, see TM-06) J(+) if %RSD > 30%	5A
Continuing Calibration (Prior to each 12 hr. shift)	RRF > 0.05	(EcoChem PJ, see TM-06) If MDL= reporting limit: J(+)/R(-) if RRF < 0.05 If reporting limit > MDL: note in worksheet if RRF <0.05	5B
	%D <25%	(EcoChem PJ, see TM-06) If > +/-90%: J+/R- If -90% to -26%: J+ (high bias) If 26% to 90%: J+/UJ- (low bias)	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample (+) result is less than CRQL and less than appropriate 5X or 10X rule (raise sample value to CRQL)	7
		U(+) if sample (+) result is greater than or equal to CRQL and less than appropriate 5X and 10X rule (at reported sample value)	7
	No TICs present	R(+) TICs using 10X rule	7
Field Blanks (Not Required)	No results > CRQL	Apply 5X/10X rule; U(+) < action level	6

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EcoChem Validation Guidelines for Semivolatile Analysis by GC/MS (Based on Organic NFG 1999)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One per matrix per batch Use method acceptance criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One per matrix per batch Use method acceptance criteria	J(+) in parent sample if RPD > CL	9
LCS low conc. H2O SVOA	One per lab batch Within method control limits	J(+) assoc. cmpd if > UCL J(+)/R(-) assoc. cmpd if < LCL J(+)/R(-) all cmpds if half are < LCL	10
LCS regular SVOA (H2O & solid)	One per lab batch Lab or method control limits	J(+) if %R > UCL J(+)/UJ(-) if %R <LCL J(+)/R(-) if %R < 10% (EcoChem PJ)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	Minimum of 3 acid and 3 base/neutral compounds Use method acceptance criteria	Do not qualify if only 1 acid and/or 1 B/N surrogate is out unless <10% J(+) if %R > UCL J(+)/UJ(-) if %R < LCL J(+)/R(-) if %R < 10%	13
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	J(+) if > 200% J(+)/UJ(-) if < 50% J(+)/R(-) if < 25% RT>30 seconds, narrate and Notify PM	19
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate and qualify if required by project (EcoChem PJ)	9
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NJ the TIC unless: R(+) common laboratory contaminants See Technical Director for ID issues	4
Quantitation/ Identification	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	See Technical Director if outliers	14 21 (false +)

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EcoChem Validation Guidelines for Pesticides, PCBs, Herbicides, and Phenol by GC/ECD (Based on Organic NFG 1999 & EPA SW-846 Methods 8081/8082/8041/8151)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature	4°C ±2°	J(+)/UJ(-) if greater than 6 deg. C (EcoChem PJ)	1
Holding Time	Water: 7 days from collection Soil: 14 days from collection Analysis: 40 days from extraction	J(+)/UJ(-) if ext/analyzed > HT J(+)/R(-) if ext/analyzed > 3X HT (EcoChem PJ)	1
Resolution Check	Beginning of ICAL Sequence Within RTW Resolution >90%	Narrate (Use Professional Judgement to qualify)	14
Instrument Performance (Breakdown)	DDT Breakdown: < 20% Endrin Breakdown: <20% Combined Breakdown: <30% Compounds within RTW	J(+) DDT NJ(+) DDD and/or DDE R(-) DDT - If (+) for either DDE or DDD J(+) Endrin NJ(+) EK and/or EA R(-) Endrin - If (+) for either EK or EA	5A
Retention Times	Surrogates: TCX (+/- 0.05); DCB (+/- 0.10) Target compounds: elute before heptachlor epoxide (+/- 0.05) elute after heptachlor epoxide (+/- 0.07)	NJ(+)/R(-) results for analytes with RT shifts For full DV, use PJ based on examination of raw data	5B
Initial Calibration	Pesticides: Low=CRQL, Mid=4X, High=16X Multiresponse - one point Calibration %RSD<20% %RSD<30% for surr; two comp. may exceed if <30% Resolution in Mix A and Mix B >90%	J(+)/UJ(-)	5A
Continuing Calibration	Alternating PEM standard and INDA/INDB standards every 12 hours (each preceeded by an inst. Blank) %D < 25% Resolution >90% in IND mixes; 100% for PEM	J(+)/UJ(-) J(+)R(-) if %D > 90% PJ for resolution	5B
Method Blank	One per matrix per batch No results > CRQL	U(+) if sample result is < CRQL and < 5X rule (raise sample value to CRQL) U(+) if sample result is > or equal to CRQL and < 5X rule (at reported sample value)	7
Instrument Blanks	Analyzed at the beginning of every 12 hour sequence No analyte > 1/2 CRQL	Same as Method Blank	7
Field Blanks	Not addressed by NFG No results > CRQL	Apply 5X rule; U(+) < action level	6

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EcoChem Validation Guidelines for Pesticides, PCBs, Herbicides, and Phenol by GC/ECD (Based on Organic NFG 1999 & EPA SW-846 Methods 8081/8082/8041/8151)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
MS/MSD (recovery)	One set per matrix per batch Method Acceptance Criteria	Qualify parent only unless other QC indicates systematic problems: J(+) if both %R > UCL J(+)/UJ(-) if both %R < LCL J(+)/R(-) if both %R < 10% PJ if only one %R outlier	8
MS/MSD (RPD)	One set per matrix per batch Method Acceptance Criteria	J(+) in parent sample if RPD > CL	9
LCS	One per SDG Method Acceptance Criteria	J(+) if %R > UCL J(+)/UJ(-) if %R < LCL J(+)/R(-) using PJ if %R <<LCL (< 10%)	10
LCS/LCSD *(if required)*	One set per matrix and batch of 20 samples RPD < 35%	J(+)/UJ(-) assoc. cmpd. in all samples	9
Surrogates	TCX and DCB added to every sample %R = 30-150%	J(+)/UJ(-) if both %R = 10 - 60% J(+) if both >150% J(+)/R(-) if any %R <10%	13
Quantitation/ Identification	Quantitated using ICAL calibration factor (CF) RPD between columns <40%	J(+) if RPD = 40 - 60% NJ(+) if RPD >60% EcoChem PJ - See TM-08	3
Two analyses for one sample	Report only one result per analyte	"DNR" results that should not be used to avoid reporting two results for one sample	11
Sample Clean-up	GPC required for soil samples Florisil required for all samples Sulfur is optional Clean-up standard check %R within CLP limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL	14
Field Duplicates	Use QAPP limits. If no QAPP: Solids: RPD <50% OR absolute diff. < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR absolute diff. < 1X RL (for results < 5X RL)	Narrate (Qualifiy if required by project QAPP)	9

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EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C	1
Holding Time	Ext. Waters: 14 days preserved 7 days unpreserved Ext. Solids: 14 Days Analysis: 40 days from extraction	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X (EcoChem PJ)	1
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $R^2 \geq 0.990$ If used, RSD of response factors $\leq$20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if R^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 85% to 115%	Narrate if frequency not met. J(+)/UJ(-) if %R < 85% J(+) if %R >115%	5B
Method Blank	At least one per batch ($\leq$10 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7
		U (at reported sample value) if sample result is $\geq$ RL and < 5X blank result	7
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in the field blank after method blank qualifiers are assigned.	6
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked. Use PJ if only one %R outlier	8
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch ($\leq$10 samples) RPD $\leq$ lab control limit	J(+) if RPD > lab control limits	9
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% (EcoChem PJ)	10

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EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Diesel & Residual Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Dx, June 1997, Wa DOE & Oregon DEQ)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Surrogates	2-fluorobiphenyl, p-terphenyl, o-terphenyl, and/or pentacosane added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits. (EcoChem PJ)	13
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2
Field Duplicates	Use project control limits, if stated in QAPP EcoChem default: water: RPD < 35% solids: RPD < 50%	Narrate (Use Professional Judgement to qualify)	9
Two analyses for one sample (dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported. (See TM-04)	11

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EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature & Preservation	4°C±2°C Water: HCl to pH < 2	J(+)/UJ(-) if greater than 6 deg. C	1
Holding Time	Waters: 14 days preserved 7 days unpreserved Solids: 14 Days	J(+)/UJ(-) if hold times exceeded J(+)/R(-) if exceeded > 3X (EcoChem PJ)	1
Initial Calibration	5 calibration points (All within 15% of true value) Linear Regression: $R^2 \geq 0.990$ If used, RSD of response factors ≤20%	Narrate if fewer than 5 calibration levels or if %R >15% J(+)/UJ(-) if R^2 <0.990 J(+)/UJ(-) if %RSD > 20%	5A
Mid-range Calibration Check Std.	Analyzed before and after each analysis shift & every 20 samples. Recovery range 80% to 120%	Narrate if frequency not met. J(+)/UJ(-) if %R < 80% J(+) if %R >120%	5B
Method Blank	At least one per batch (≤10 samples) No results >RL	U (at the RL) if sample result is < RL & < 5X blank result.	7
		U (at reported sample value) if sample result is ≥ RL and < 5X blank result	7
Trip Blank (if required by project)	No results >RL	Action is same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned.	18
Field Blanks (if required by project)	No results > RL	Action is same as method blank for positive results remaining in field blank after method and trip blank qualifiers are assigned.	6
MS samples (accuracy) (if required by project)	%R within lab control limits	Qualify parent only, unless other QC indicates systematic problems. J(+) if both %R > upper control limit (UCL) J(+)/UJ(-) if both %R < lower control limit (LCL) No action if parent conc. >5X the amount spiked. Use PJ if only one %R outlier	8
Precision: MS/MSD or LCS/LCSD or sample/dup	At least one set per batch (≤10 samples) RPD ≤ lab control limit	J(+) if RPD > lab control limits	9

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EcoChem Validation Guidelines for Total Petroleum Hydrocarbons-Gasoline Range

(Based on EPA National Functional Guidelines as applied to criteria in NWTPH-Gx, June 1997, Wa DOE & Oregon DEQ)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
LCS (not required by method)	%R within lab control limits	J(+)/UJ(-) if %R < LCL J(+) if %R > UCL J(+)/R(-) if any %R <10% (EcoChem PJ)	10
Surrogates	Bromofluorobenzene and/or 1,4-difluorobenzene added to all samples (inc. QC samples). %R = 50-150%	J(+)/UJ(-) if %R < LCL J(+) if %R >UCL J(+)/R(-) if any %R <10% No action if 2 or more surrogates are used, and only one is outside control limits. (EcoChem PJ)	13
Pattern Identification	Compare sample chromatogram to standard chromatogram to ensure range and pattern are reasonable match. Laboratory may flag results which have poor match.	J(+)	2
Field Duplicates	Use project control limits, if stated in QAPP EcoChem default: water: RPD < 35% solids: RPD < 50%	Narrate outliers If required by project, qualify with J(+)/UJ(-)	9
Two analyses for one sample (e.g., dilution)	Report only one result per analyte	"DNR" (or client requested qualifier) all results that should not be reported. (See TM-04)	11

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EcoChem Validation Guidelines for Metals Analysis by ICP (Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Cooler Temperature and Preservation	Cooler temperature: 4°C ±2° Waters: Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration Tissues: Frozen	EcoChem Professional Judgment - no qualification based on cooler temperature outliers J(+)/UJ(-) if pH preservation requirements are not met	1
Holding Time	180 days from date sampled Frozen tissues - HT extended to 2 years	J(+)/UJ(-) if holding time exceeded	1
Initial Calibration	Blank + minimum 1 standard If more than 1 standard, r > 0.995	J(+)/UJ(-) if r < 0.995 (multi point cal)	5A
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ±10% of true value	J(+)/UJ(-) if %R 75-89% J(+) if %R = 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5A
Continuing Calibration Verification (CCV)	Every ten samples, immediately following ICV/ICB and at end of run %R within ±10% of true value	J(+)/UJ(-) if %R = 75-89% J(+) if %R 111-125% R(+) if %R > 125% R(+/-) if %R < 75%	5B

Initial and Continuing Calibration Blank (ICB/CCB)	After each ICV and CCV
	every ten samples and end of run
	| blank | < IDL (MDL)
		Action level is 5x absolute value of blank conc.
		For (+) blanks, U(+) results < action level
		For (-) blanks, J(+)/UJ(-) results < action level
		(Refer to TM-02 for additional information)
			7

Reporting Limit Standard	2x RL analyzed beginning of run Not required for Al, Ba, Ca, Fe, Mg, Na, K %R = 70%-130% (50%-150% Sb, Pb, Tl)	R(-)/J(+) < 2x RL if %R <50% (< 30% Sb, Pb, Tl) J(+) < 2x RL, UJ(-) if %R 50-69% (30-49% Sb, Pb,Tl) J(+) < 2x RL if %R 130-180% (150-200% Sb, Pb, Tl) R(+) < 2x RL if %R > 180% (200% Sb, Pb, Tl)	14
Interference Check Samples (ICSA/ICSAB)	ICSAB %R 80 - 120% for all spiked elements | ICSA | < MDL for all unspiked elements except: K, Na	For samples with Al, Ca, Fe, or Mg > ICS levels R(+/-) if %R < 50% J(+) if %R >120% J(+)/UJ(-) if %R= 50 to 79% Use Professional Judgment for ICSA to determine if bias is present see TM-09 for additional details	17
Method Blank	One per matrix per batch (batch not to exceed 20 samples) blank < MDL	Action level is 5x blank concentration U(+) results < action level	7
Laboratory Control Sample (LCS)	One per matrix per batch		10
	Blank Spike: %R within 80-120%	R(+/-) if %R < 50% J(+)/UJ(-) if %R = 50-79% J(+) if %R >120%	
	CRM: Result within manufacturer's certified acceptance range or project guidelines	J(+)/UJ(-) if < LCL, J(+) if > UCL	

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EcoChem Validation Guidelines for Metals Analysis by ICP
(Based on Inorganic NFG 1994 & 2004)

VALIDATION QC ELEMENT	ACCEPTANCE CRITERIA	ACTION	REASON CODE
Matrix Spikes	One per matrix per batch 75-125% for samples less than 4x spike level	J(+) if %R > 125% J(+)/UJ(-) if %R < 75% J(+)/R(-) if %R < 30% or J(+)/UJ(-) if Post Spike %R 75-125% Qualify all samples in batch	8
Post-digestion Spike	If Matrix Spike is outside 75-125%, spike at twice the sample conc.	No qualifiers assigned based on this element	
Laboratory Duplicate (or MS/MSD)	One per matrix per batch RPD < 20% for samples > 5x RL Diff < RL for samples >RL and < 5x RL (Diff < 2x RL for solids)	J(+)/UJ(-) if RPD > 20% or diff > RL (2x RL for solids) qualify all samples in batch	9
Serial Dilution	5x dilution one per matrix %D < 10% for original sample conc. > 50x MDL	J(+)/UJ(-) if %D >10% qualify all samples in batch	16
Field Blank	Blank < MDL	Action level is 5x blank conc. U(+) sample values < action level in associated field samples only	6
Field Duplicate	For results > 5x RL: Water: RPD < 35% Solid: RPD < 50% For results < 5 x RL: Water: Diff < RL Solid: Diff < 2x RL	J(+)/UJ(-) in parent samples only	9
Linear Range	Sample concentrations must fall within range	J values over range	20

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EcoChem, INC.
Environmental Data Quality

APPENDIX B
QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
SAIC - Blaine Mini Mart

Sample_ID	Lab ID	Method	Analyte	Result	Units	Lab Flag	DV Qualifier	DV Reason Code
SB-18-5	QN53D	NWTPH-Gx	Gasoline Range Organics	52000	mg/kg		J	13
MW-5-031710	QP09A	SW8260C	Methyl tert-Butyl Ether	0.5	ug/l	U	UJ	5B
MW-5-031710	QP09A	SW8270DSIM	2-Methylnaphthalene	0.13	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Acenaphthene	0.64	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Anthracene	0.14	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Dibenzofuran	0.86	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Fluorene	1.7	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Naphthalene	0.68	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Phenanthrene	1.9	ug/l		J	9
MW-5-031710	QP09A	SW8270DSIM	Pyrene	0.050	ug/l		J	9
MW-5-031710-FD	QP09B	SW8260C	Methyl tert-Butyl Ether	0.5	ug/l	U	UJ	5B
MW-5-031710-FD	QP09B	SW8270DSIM	2-Methylnaphthalene	2.7	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Acenaphthene	0.014	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Anthracene	0.010	ug/l	U	UJ	9
MW-5-031710-FD	QP09B	SW8270DSIM	Dibenzofuran	0.019	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Fluorene	0.026	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Naphthalene	10	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Phenanthrene	0.020	ug/l		J	9
MW-5-031710-FD	QP09B	SW8270DSIM	Pyrene	0.010	ug/l	U	UJ	9
MW-1-031710	QP09C	SW8260C	Methyl tert-Butyl Ether	0.5	ug/l	U	UJ	5B
MW-2-031810	QP09F	SW8270DSIM	Acenaphthene	0.15	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Acenaphthylene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Anthracene	0.016	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Benzo(a)anthracene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Benzo(a)pyrene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Benzo(b)fluoranthene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Benzo(g,h,i)perylene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Benzo(k)fluoranthene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Chrysene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Dibenz(a,h)anthracene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Dibenzofuran	0.053	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Fluoranthene	0.013	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Fluorene	0.15	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Indeno(1,2,3-cd)pyrene	0.010	ug/l	U	UJ	13
MW-2-031810	QP09F	SW8270DSIM	Phenanthrene	0.12	ug/l		J	13
MW-2-031810	QP09F	SW8270DSIM	Pyrene	0.017	ug/l		J	13
Trip Blanks	QP09G	SW8260C	Methyl tert-Butyl Ether	0.5	ug/l	U	UJ	5B

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 24, 2010

Glen Vedera
SAIC
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

RE: Project: Blaine, 188714
ARI Job No: QN14

Dear Glen:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of the analyses are discussed in the Case Narrative.

An electronic copy of this data and associated raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.



Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com

Enclosures

cc: eFile QN14

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody
Documentation

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN14

prepared
by

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: QN14	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: SAIC	Phone: 206 271 4691	Date: 3/8/10	Ice Present? Y
Client Contact: Glen Vedera		No. of Coolers: 2	Cooler Temps: 2
Client Project Name: Blaine			
Client Project #: 188714	Samplers: JW/AL/AW		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX + MTBE 8260C	NWTPH-Gx	NWTPH-Dx	PCB 8082	VOC/TPH/MS 8260C	Lead 6010C			Notes/Comments
SB-08-6.0	3/8/10	1115	Soil	7	X	X	X		X				
SB-08-16	3/8/10	1145	Soil	7	X	X	X		X				
SB-09-06	3/8/10	1310	Soil	7	X	X	X		X				
SB-09-16	3/8/10	1330	Soil	7	X	X	X		X				
SB-10-05	3/8/10	1425	Soil	7	X	X	X		X				
SB-10-16	3/8/10	1445	Soil	7	X	X	X		X				
SB-11-06	3/8/10	1545	Soil	7	X	X	X		X				
SB-11-16	3/8/10	1600	Soil	7	X	X	X		X				

3/8/10

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Wartes	Printed Name: Jonathon Walter	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/9/10 1200	Date & Time: 3/10/10 0950	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: QN14	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: SAIC	Phone: 206 271 4691	Date: 3/9/10	Ice Present? Y
Client Contact: Glen Vedera		No. of Coolers: 2	Cooler Temps: 2
Client Project Name: Blaine			
Client Project #: 188714	Samplers: JW/AL/AW		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX + MTBE 8260C	Naphth - 8260C	Naphth - 8270C (SIM)	PCB 8082	Volatiles TS 8260C	Lead 6010B			Notes/Comments
SB-12-1	3/9/10	0825	soil	8	X	X	X	X	X	X			Diesel + DRO in same jar
SB-12-5	3/9/10	0845	soil	7	X	X	X		X				
SB-12-16	3/9/10	0900	soil	7	X	X	X		X				
SB-13-5	3/9/10	1015	soil	7	—	—	—		—				
SB-13-16	3/9/10	1030	soil	7	X	X	X		X				
SB-14-5	3/9/10	1100	soil	7	X	X	X		X				
TB-030910-1	3/9/10	1400	water	2	X	X			X				
SB-14-16	3/9/10	1120	soil	7	X	X	X		X				
SB-15-1A	3/9/10	1145	soil	7	X	X	X		X				
										3/9/10			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Walter	Printed Name: Jonathon Walter	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/9/10 1200	Date & Time: 3/10/10 0950	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SAIC Project Name: Blaine

COC No(s): _____ (NA) Delivered by: (Fed-Ex) UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: QN14 Tracking No: 8636 6536 4093, 8638 6536 4163 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 2.1 3.6 ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90541619

Cooler Accepted by: JW Date: 3/10/10 Time: 0950

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		(YES)	NO
What kind of packing material was used?	Bubble Wrap (Wet Ice) (Gel Packs) (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		YES	(NO)
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	3/1/10	

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JP Date: 3/10/10 Time: 1255

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Some voa vials were not labeled or only partially labeled.

SB-15-1A was labeled as SB-15A-1 on a jar

By: JP Date: 3/10/10

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	• • •

Small → "sm"

Peabubbles → "pb" Trip Blanks 2 yr2

Large → "lg"

Headspace → "hs"

QN14 : 000005

Case Narrative

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN14

prepared
by

Analytical Resources, Inc.

Case Narrative

Client: SAIC
Project: Blaine, 188714
ARI Job No.: QN14

Sample Receipt

Sixteen soil samples and a trip blank were received on March 10, 2010, under ARI job QN14. The cooler temperatures measured by IR thermometer following ARI SOP were 2.1 and 3.6°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile by SW8260C

The samples were analyzed within the recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Aroclor PCBs by SW8082

The sample and associated laboratory QC were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries of Aroclor 1016 were outside the advisory control limits high for sample **SB-12-1**. No corrective action is required for matrix QC.

QN14 : 000007

Acid/Silica Cleaned TPH-Dx by NWTPH

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

TPH-Gx by NWTPH

The samples and associated laboratory QC were analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Total Metals by SW6010B

The sample and associated laboratory QC were digested and analyzed within method recommended holding times, using internal standards.

The method blank was clean at the reporting limit. The LCS percent recovery was within control limits.

The matrix spike percent recovery and duplicate RPD were within control limits.

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

3/6/2010

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1662-3	ABN	100/150	MEOH	10/08/10
B	1633-3	SIM PNA	15/75	MEOH	08/12/10
C*	1559-1	SIM ABN	25/37.5	MEOH	03/13/10
D	1689-2	LOW PCB	0.2	ACETONE	12/29/10
E	1661-2	HERB	62.5	MEOH	10/02/10
F	1683-3	PCP	12.5	ACETONE	12/09/10
G*	1534-1	1,4DIOXANE	100	MEOH	02/20/10
H	1594-1	OP-PEST	25	MEOH	04/01/10
I	1634-1	LOW S. PNA	1.5	MEOH	08/12/10
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1682-1	EPH	1500	MECL2	09/17/10
N	1689-3	PCB	2	ACETONE	12/29/10
O	1699-1	TPH	450	MECL2	07/02/10
P	1666-3	HCID	2250	MECL2	05/06/10
Q	1620-2	EDB	1	MEOH	06/22/10
R	1615-1	RESIN ACID	250	ACETONE	06/17/10
S#	1568-5	PBDE	.25	MEOH	NA
T	1674-2	ALKYL PNA	10	MEOH	07/30/10
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					
#project specific					
Y					
Z					

ON1 U : 00011

LCS SOLUTIONS

3/6/2010

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1686-1	PCB 1660	20	ACETONE	09/01/10
2#	1472-3	BCOC PEST	10	ACETONE	NA
3	1620-4	PEST	02/04/20	ACETONE	06/26/10
4	1667-1	LOW PEST	0.2/0.4/2	ACETONE	06/26/10
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1705-1	ABN	100	ACETONE	07/01/10
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1698-2	ABN ACID	100/200	MECL2	07/14/10
11	1642-2	TPHD	15000	ACETONE	09/07/10
12	1698-1	ABN BASE	200	MEOH	07/24/10
13	1613-1	LOW PCB	2	ACETONE	06/08/10
14*	1547-1	LOW ABN ACID	10/20	MEOH	04/10/10
15*	1591-3	SIM PNA	15/75	MEOH	08/28/10
16	1602-3	DIOXANE	100	MEOH	03/20/10
17	1644-1	1248 PCB	10	ACETONE	09/10/10
18*	1591-4	LOW SIM PNA	1.5	ACETONE	08/28/10
19	1685-3	AK103	7500	ACETONE	09/03/10
20	1682-4	PNA	100	ACETONE	12/04/10
21	1593-3	SKY/BHT	100	MEOH	03/31/10
22	1702-4	HERB	12.5/12500	MEOH	04/17/10
23*	1505-1	LW ABN BASE	20	MEOH	03/20/10
24	1696-1	LOW ABN	10	ACETONE	01/13/11
25#	1481-1	DIPHENYL	100	MEOH	NA
26	1702-5	OP-PEST	25	MEOH	03/31/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1684-1	ADD. PEST	4	ACETONE	03/25/10
29#	1496-3	DECANES	100	MEOH	NA
30	1620-1	EDB/DBCP	0.2	MEOH	06/22/10

QN1 U : 000012

LCS SOLUTIONS

3/6/2010

31	1596-1	TERPINEOL	100	MEOH	04/03/10
32	1619-3	GUAIACOL	50-200	ACETONE	04/30/10
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
50	1617-1	FULL RESIN	250	ACETONE	06/17/10
51	1696-3	DDTS	2.5	ACETONE	06/03/10
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1701-2	PBDE	0.5	ACETONE	02/10/11
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

ON 4 U : 00015

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

ON1 U : 080815

Analytical Resources,Incorporated
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Spike Recovery Control Limits - Analysis of PCB / Aroclors in Soil & Sediment Samples - EPA SW-846 Method 8082

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Routine Analysis	PSDDA	Low Level	Low level	Soxhlet Extraction	Medium Level
Typical Reporting Limit (µg/kg):	**33**	**20**	**10**	**4**	**100**	**800**
Nominal Sample Wet Weight (g):	**12**	**25**	**25**	**25**	**10**	**5**
Final Extract Volume (mL):	**4**	**5**	**2.5**	**1**	**10**	**40**
LCS Spike Recovery [1,2]						
Aroclor 1016	48 - 106	52 - 101	53 - **100**	37 - 106	30 - 160[3]	59 - 108
Aroclor 1260	50 - 121	52 - 126	58 - 112	50 - 116	30 - 160[3]	43 - 177
Method Blank / LCS Surrogate Recovery						
Tetrachloro-*meta*-xylene (TCMX)	46 - 111	47 - 110	43 - 108	35 - 100	30 - 160[3]	49 - 110
Decachlorobiphenyl	51 - 112	48 - 119	48 - 118	40 - 109	30 - 160[3]	51 - 127
Sample Surrogate Recovery						
Tetrachloro-*meta*-xylene (TCMX)	50 - 114	46 - 113	35 - 119	38 - 102	30 - 160[3]	28 - 106
Decachlorobiphenyl	42 - 127	40 - 130	33 - 143	34 - 141	30 - 160[3]	22 - 168

(1) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(2) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(3) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.

ON1U : 00017

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water	Soil	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [3]				
Diesel	-- - --	56 - 103	55 - 104	75 - 125
Diesel with Acid & Silica Clean-up	-- - --	43 - 100	54 - 96	(4)
Diesel with Silica Clean-up	-- --	43 - 100	54 - 96	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-- - --	57 - 120	58 - 121	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-- - --	51 - 120	63 - 115	(4)
o-Terphenyl Silica Clean-up		51 - 120	63 - 115	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	35 - 131	53 - 118	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-- - --	41 - 121	49 - 120	(4)
o-Terphenyl with Silica Clean-up		41 - 121	49 - 120	50 - 150

1. Control Limits calculated using all data generated 1/1/08 through 12/31/08
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
4. Alaska State UST Methods do not allow acid cleanup of sample extracts.

ON14 : 00015

Analytical Resources,Incorporated
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Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	Aqueous Samples		Soil / Sediment Samples	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

ON1U : 00015

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	OC17	
Sample Matrix	Soil/Sediment	
Sample Weight/Volume	5.0 g	
Spike Level*	2.0 µg/kg	
Preparation Method	5030B	
ARI Analytical SOP	700S	Soil/Sediment
Instrument	Finn 5	Reporting
Date Analyzed	12/5/08	Limit
Reporting Units	µg/kg	µg/kg
Analyte	**MDL**	**RL**
Dichlorodifluoromethane	0.363	**1.0**
Chloromethane	0.094	**1.0**
Vinyl Chloride	0.157	**1.0**
Bromomethane	0.400	**1.0**
Chloroethane	0.436	**1.0**
Trichlorofluoromethane	0.384	**1.0**
Acrolein*	1.104	**50.0**
Acetone*	2.221	**5.0**
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.383	**2.0**
1,1-Dichloroethene	0.184	**1.0**
Bromoethane	0.516	**2.0**
Iodomethane	0.304	**1.0**
Methylene Chloride	0.706	**2.0**
Carbon Disulfide	0.352	**1.0**
Acrylonitrile	0.334	**5.0**
Methyl-t-butyl ether (MTBE)	0.166	**1.0**
trans-1,2-Dichloroethene	0.208	**1.0**
Vinyl Acetate	0.326	**5.0**
1,1-Dichloroethane	0.129	**1.0**
2-Butanone*	0.960	**5.0**
2,2-Dichloropropane	0.144	**1.0**
cis-1,2-Dichloroethene	0.110	**1.0**
Chloroform	0.347	**1.0**
Bromochloromethane	0.240	**1.0**
1,1,1-Trichloroethane	0.123	**1.0**
1,1-Dichloropropene	0.165	**1.0**
Carbon Tetrachloride	0.396	**1.0**
1,2-Dichloroethane	0.351	**1.0**

ON1 U : 00021

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	OC17	
Sample Matrix	Soil/Sediment	
Sample Weight/Volume	5.0 g	
Spike Level*	2.0 µg/kg	
Preparation Method	5030B	
ARI Analytical SOP	700S	Soil/Sediment
Instrument	Finn 5	Reporting
Date Analyzed	12/5/08	Limit
Reporting Units	µg/kg	µg/kg
Analyte	**MDL**	**RL**
Benzene	0.218	1.0
Trichloroethene	0.510	1.0
1,2-Dichloropropane	0.357	1.0
Bromodichloromethane	0.481	1.0
Dibromomethane	0.265	1.0
2-Chloroethyl Vinyl Ether	0.453	5.0
4-Methyl-2-Pentanone*	0.952	5.0
cis-1,3-Dichloropropene	0.199	1.0
Toluene	0.225	1.0
trans-1,3-Dichloropropene	0.183	1.0
1,1,2-Trichloroethane	0.253	1.0
1,2-Dibromoethane	0.177	1.0
2-Hexanone*	0.823	5.0
1,3-Dichloropropane	0.125	1.0
Tetrachloroethene	0.400	1.0
Chlorodibromomethane	0.295	1.0
Chlorobenzene	0.098	1.0
1,1,1,2-Tetrachloroethane	0.170	1.0
Ethyl Benzene	0.087	1.0
m,p-Xylene	0.263	1.0
o-Xylene	0.205	1.0
Styrene	0.230	1.0
Bromoform	0.490	1.0
Isopropyl Benzene	0.173	1.0
1,1,2,2-Tetrachloroethane	0.218	1.0
1,2,3-Trichloropropane	0.483	2.0
trans-1,4-Dichloro-2-Butene	0.287	5.0
n-Propyl Benzene	0.144	1.0
Bromobenzene	0.166	1.0

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
1,3,5-Trimethylbenzene	0.164	**1.0**
2-Chlorotoluene	0.247	**1.0**
4-Chlorotoluene	0.066	**1.0**
t-Butylbenzene	0.115	**1.0**
1,2,4-Trimethylbenzene	0.114	**1.0**
s-Butylbenzene	0.179	**1.0**
4-Isopropyl Toluene	0.137	**1.0**
1,3-Dichlorobenzene	0.134	**1.0**
1,4-Dichlorobenzene	0.238	**1.0**
n-Butylbenzene	0.233	**1.0**
1,2-Dichlorobenzene	0.045	**1.0**
1,2-Dibromo-3-Chloropropane	0.600	**5.0**
1,2,4-Trichlorobenzene	0.270	**5.0**
Hexachloro-1,3-Butadiene	0.192	**5.0**
Naphthalene	0.097	**5.0**
1,2,3-Trichlorobenzene	0.179	**5.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.
* Compounds noted labeled with an * are spiked at higher concentrations.

MDL Verifications			
ARI Data File	**Date**	**Spike Level**	**Recovery**
OC17	12/5/08	0.5 µg/L	41 – 137 %

ON1 U : 00023

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary for Polychlorinated Biphenyls (PCB) EPA Method 8082

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Protocol	MDL Date	Data File	Sample Volume	FEV	Aroclor	MDL[1]	RL
Aqueous Samples (Separatory Funnel Extraction)							
Standard	6/11/08	MY36	500 mL	5.0 mL	1016 1260	0.117 0.116	1.0 ppb
MTCA Method A	3/13/09	OO17	500 mL	1.0 mL	1016 1260	0.056 0.028	0.1 ppb
Low Level [2]	1/14/09	OF26	1000 mL	0.5 mL	1016 1260	0.0036 0.0046	0.01 ppb
Soil / Sediment Samples							
Microwave (MARS)	1/8/09	OE30	12 g	4 mL	1016 1260	5.61 2.20	33 ppb
Soxhlet Extraction	5/16/06	JG75	10 g	10 mL	1016 1260	24.4 30.3	100 ppb
PSEP/ Low Level Options	1/30/09	ON88	25 g	5 mL	1016 1260	2.18 2.03	20 ppb
	1/30/09	ON88	25 g	1 mL	1016 1260	2.18 2.03	4 ppb
Medium Level	6/18/08	MY37	5 g	40 mL	1016 1260	151 191	800 ppb
Tissue reported on an "as received" wet weight basis							
Tissue	5/27/05	IC09	10 g	2 mL	1016 1260	2.92 3.91	20 ppb
Tissue	11/22/05	IT16	25 g	1 mL	1016 1260	1.11 1.48	4 ppb

MDL Verifications					
Matrix	**Method**	**Spike**	**Date**	**Data**	**Spike Recovery**
Water	500 to 5 mL	0.05 µg/L	6/11/08	MY36	1016 = 106%; 1260 = 86.0%
Water	500 to 1 mL	0.05 µg/L	3/13/09	OO17	1016 = 88%; 1260 = 116%
Water	1000 to 0.5 mL[2]	0.0025 µg/L	1/14/09	OF26	1016/1260 recovery 97.3 to 164%
Soil	12 g to 4 mL	3.33 µg/kg	1/8/09	OE30	1016/1260 recovery 88.4 - 126%
Soil	25 g to 1 mL	2 µg/kg	1/30/09	ON88	1016/1260 recovery 79 - 104%
Soil	Soxhlet	25 µg/kg	5/16/06	JG75	1016/1260 recovery 98 to 135%
Soil	Medium	400 ug/kg	6/18/08	MY37	1016 = 120%; 1260 = 104%
Tissue	Tissuemizer		11/22/05	IT28	1016/1260 recovery 100 to 153%

(1) MDL studies performed on multiple instruments and/or multiple chromatographic columns for Aroclor 1016 and Aroclor 1260. The highest calculated MDL for each Aroclor is reported.
(2) Low level extraction solvent is Hexane instead of Methylene Chloride.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported and is based on the lowest calibration standard concentration.

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Soil

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**50**
NW-TPH-D C_{12}-C_{24}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
AK102 C_{10}-C_{25}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
JP-4 Toluene-C14	2/13/07	JN65	Microwave	20 mg/kg	10g / 2.0 mL	3.19	**10.0**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**100**
NW-TPH-Dext C_{24}-C_{38}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.694	**10.0**
AK103 C_{25}-C_{36}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.859	**10.0**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**% Recovery**
NWTPH-Dext	5.0 mg/kg	Microwave	2/6/09	OE33	TPH-Dext = 104
AK103	5.0 mg/kg	Microwave	2/6/09	OE33	AK103 = 120
NWTPH-D / AK102	2.5 mg/kg	Microwave	2/6/09	OE33	NWTPH-D = 114, AK102 = 130
JP-4	20 mg/kg	Sonication	2/13/07	JN65	88

(1) - MDL studies performed on Instrument FID-3A.
(2) - RL based on extraction of 10 grams sample (dry weight).
(3) – MDL studies are not performed for HCID analyses.The reporting limits are specified in the method.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

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MDL and RL Summary for Gasoline Range Organics
Soil Samples – Methanol Extraction Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Sample Prep	MDL Spike Level mg/kg	MDL[1] mg/kg	MDL Date	RL mg/kg
NWTPH-G Toluene – Naphthalene	10g soil in 5 mL Methanol 500 mL FEV	10	2.39	1/6/10	**5**
8015B 2-Methylpentane – 1,2,4-Trimethylbenzene	10g soil in 5 mL Methanol 500 mL FEV	10	2.87	1/6/10	**5**
WA-TPH-G Toluene – nC_{12}	10g soil in 5 mL Methanol 500 mL FEV	10	2.41	1/6/10	**5**
AK101[2] $nC_6 – nC_{10}$	10g soil in 5 mL Methanol 500 mL FEV	10	2.95	1/6/10	**5**

MDL Verification

ARI Data File	Instrument	Extraction	Analysis Date	Spike Level	Gas Spike Average Recovery
QD23	PID3	MeOH	1/6/10	2.5 mg/kg	120 - 136%

(1) - ARI data file = QD23
(2) - Samples for AK101 analysis of soil are preserved with Methanol in the field.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

ONLU : 000025

Analytical Resources,Incorporated
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MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		ON85	ON85			
Sample Matrix		Water	Soil	Reporting	Reporting	Reporting
Sample Weight/Volume		50 mL	1 g	Limit	Limit	Limit
Final Digestate Volume		50 mL	100 mL	Water	Soil[3]	Tissue[4]
Analyte	**MDL Spike mg/L**	**MDL- µg/L[1]**	**MDL- mg/kg[2]**	**RL- µg/L**	**RL- mg/kg**	**RL- mg/kg[4]**
Aluminum	0.03	13.38	0.635	50	5.0	1.00
Antimony	0.05	2.97	0.454	50	5.0	1.00
Arsenic	0.05	5.35	0.198	50	5.0	1.00
Barium	0.003	1.23	0.073	3.0	0.3	0.06
Beryllium	0.001	0.13	0.006	1.0	0.1	0.02
Boron	0.01	4.97	0.071	20	2.0	0.40
Cadmium	0.002	0.47	0.039	2.0	0.2	0.04
Calcium	0.03	14.48	1.051	50	5.0	1.00
Chromium	0.004	1.80	0.105	5.0	0.5	0.10
Cobalt	0.002	0.16	0.039	3.0	0.3	0.06
Copper	0.004	0.61	0.063	2.0	0.2	0.04
Iron	0.01	8.36	0.313	50	5.0	1.00
Lead	0.01	1.49	0.307	20	2.0	0.40
Magnesium	0.04	3.96	0.190	50	5.0	1.00
Manganese	0.001	0.25	0.013	1.0	0.1	0.02
Molybdenum	0.005	2.10	0.063	5.0	0.5	0.10
Nickel	0.02	5.07	0.245	10	1.0	0.20
Potassium	1.50	119.29	13.210	500	50	10.00
Selenium	0.05	6.33	0.640	50	5.0	1.00
Silicon	0.03	9.49	0.570	60	(5)	(5)

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		ON85	ON85			
Sample Matrix		Water	Soil	Reporting	Reporting	Reporting
Sample Weight/Volume		50 mL	1 g	Limit	Limit	Limit
Final Digestate Volume		50 mL	100 mL	Water	Soil[3]	Tissue[4]
Analyte	**MDL Spike mg/L**	**MDL- µg/L[1]**	**MDL- mg/kg[2]**	**RL- µg/L**	**RL- mg/kg**	**RL- mg/kg[4]**
Silver	0.002	0.54	0.064	3.0	0.3	0.06
Sodium	0.05	54.57	0.658	500	50	10
Strontium	0.001	0.21	0.006	1.0	0.1	0.02
Thallium	0.05	5.02	0.588	50	5.0	1.00
Tin	0.01	2.02	0.206	10	1.0	0.20
Titanium	0.01	1.71	0.148	5.0	0.5	0.10
Vanadium	0.001	0.47	0.063	3.0	0.3	0.06
Zinc	0.01	1.45	0.610	10.0	1.0	0.20

Method Detection Limit (MDL) studies calculated in accordance with 40 CFR Part 136, Appendix B. MDLs are statistical measures of short term precision.

[1] MDLs effective 3/20/09.
[2] MDLs effective 4/22/09.
[3] Soil and sediment reporting limit based on 100% solids, 1.0 g sample with 100 mL final volume.
[4] Tissue reported on an "as received" wet weight basis. 5.0g sample with 100mL final volume.
[5] ARI does not analyse for Silicon in solid or tissue samples.

ON1U : 080228

Data Summary Package

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN14

prepared
by

Analytical Resources, Inc.

VOLATILE ANALYSIS

QN14 : 00030

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-08-6.0**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14A
LIMS ID: 10-5867
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 13:39

Sample Amount: 3.54 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 26.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.4	< 1.4	U
108-88-3	Toluene	1.4	< 1.4	U
100-41-4	Ethylbenzene	1.4	< 1.4	U
179601-23-1	m,p-Xylene	1.4	< 1.4	U
95-47-6	o-Xylene	1.4	< 1.4	U
1634-04-4	Methyl tert-Butyl Ether	1.4	< 1.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	120%
d8-Toluene	106%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-08-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14B
LIMS ID: 10-5868
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 14:09

Sample Amount: 3.34 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 35.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.5	< 1.5	U
108-88-3	Toluene	1.5	< 1.5	U
100-41-4	Ethylbenzene	1.5	< 1.5	U
179601-23-1	m,p-Xylene	1.5	< 1.5	U
95-47-6	o-Xylene	1.5	< 1.5	U
1634-04-4	Methyl tert-Butyl Ether	1.5	< 1.5	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	129%
d8-Toluene	104%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	103%

QN14B : 08032

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-09-06**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14C
LIMS ID: 10-5869
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 14:33

Sample Amount: 3.71 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.4	< 1.4	U
108-88-3	Toluene	1.4	< 1.4	U
100-41-4	Ethylbenzene	1.4	< 1.4	U
179601-23-1	m,p-Xylene	1.4	< 1.4	U
95-47-6	o-Xylene	1.4	< 1.4	U
1634-04-4	Methyl tert-Butyl Ether	1.4	< 1.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	128%
d8-Toluene	105%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	104%

QN14 : 000033

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-09-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14D
LIMS ID: 10-5870
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 15:00

Sample Amount: 4.63 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 21.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.1**	**0.6**	**J**
108-88-3	Toluene	1.1	< 1.1	U
100-41-4	Ethylbenzene	1.1	< 1.1	U
179601-23-1	m,p-Xylene	1.1	< 1.1	U
95-47-6	o-Xylene	1.1	< 1.1	U
1634-04-4	Methyl tert-Butyl Ether	1.1	< 1.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	123%
d8-Toluene	105%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	101%

QN14 : 00034

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-10-05**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14E
LIMS ID: 10-5871
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 15:26

Sample Amount: 3.91 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 26.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	106%
Bromofluorobenzene	102%
d4-1,2-Dichlorobenzene	104%

QN14 U : 000025

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-10-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14F
LIMS ID: 10-5872
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 15:53

Sample Amount: 3.42 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 37.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.5**	**0.9**	**J**
108-88-3	Toluene	1.5	< 1.5	U
100-41-4	Ethylbenzene	1.5	< 1.5	U
179601-23-1	m,p-Xylene	1.5	< 1.5	U
95-47-6	o-Xylene	1.5	< 1.5	U
1634-04-4	Methyl tert-Butyl Ether	1.5	< 1.5	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	120%
d8-Toluene	100%
Bromofluorobenzene	98.7%
d4-1,2-Dichlorobenzene	104%

QN14F : 088936

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-11-06**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14G
LIMS ID: 10-5873
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 16:20

Sample Amount: 3.85 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	124%
d8-Toluene	103%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	104%

QN14:000027

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-11-16**
SAMPLE

Lab Sample ID: QN14H
LIMS ID: 10-5874
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/08/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 16:47

Sample Amount: 2.35 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 35.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	2.1	< 2.1	U
108-88-3	Toluene	2.1	< 2.1	U
100-41-4	Ethylbenzene	2.1	< 2.1	U
179601-23-1	m,p-Xylene	2.1	< 2.1	U
95-47-6	o-Xylene	2.1	< 2.1	U
1634-04-4	Methyl tert-Butyl Ether	2.1	< 2.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	115%
d8-Toluene	99.6%
Bromofluorobenzene	93.5%
d4-1,2-Dichlorobenzene	111%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-12-1**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 17:14

Sample Amount: 5.64 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 12.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.9	< 0.9	U
108-88-3	**Toluene**	**0.9**	**0.8**	**J**
100-41-4	**Ethylbenzene**	**0.9**	**1.6**	
179601-23-1	**m,p-Xylene**	**0.9**	**10**	
95-47-6	**o-Xylene**	**0.9**	**7.1**	
1634-04-4	Methyl tert-Butyl Ether	0.9	< 0.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	114%
d8-Toluene	105%
Bromofluorobenzene	108%
d4-1,2-Dichlorobenzene	107%

QN14I : 000030

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-12-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14J
LIMS ID: 10-5876
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 17:40

Sample Amount: 3.77 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	120%
d8-Toluene	101%
Bromofluorobenzene	96.7%
d4-1,2-Dichlorobenzene	103%

QN14J : 088618

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-12-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14K
LIMS ID: 10-5877
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 18:07

Sample Amount: 2.94 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 28.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	< 1.7	U
108-88-3	Toluene	1.7	< 1.7	U
100-41-4	Ethylbenzene	1.7	< 1.7	U
179601-23-1	m,p-Xylene	1.7	< 1.7	U
95-47-6	o-Xylene	1.7	< 1.7	U
1634-04-4	Methyl tert-Butyl Ether	1.7	< 1.7	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	128%
d8-Toluene	103%
Bromofluorobenzene	102%
d4-1,2-Dichlorobenzene	105%

QN14 U : 00001

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-13-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14L
LIMS ID: 10-5878
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 18:34

Sample Amount: 3.97 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	130%
d8-Toluene	105%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	105%

QN14L : 000012

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-13-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14M
LIMS ID: 10-5879
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 19:01

Sample Amount: 2.90 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	< 1.7	U
108-88-3	Toluene	1.7	< 1.7	U
100-41-4	Ethylbenzene	1.7	< 1.7	U
179601-23-1	m,p-Xylene	1.7	< 1.7	U
95-47-6	o-Xylene	1.7	< 1.7	U
1634-04-4	Methyl tert-Butyl Ether	1.7	< 1.7	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	121%
d8-Toluene	104%
Bromofluorobenzene	97.5%
d4-1,2-Dichlorobenzene	106%

QN14M : 88013

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-14-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14N
LIMS ID: 10-5880
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 19:28

Sample Amount: 3.14 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 26.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	< 1.6	U
108-88-3	Toluene	1.6	< 1.6	U
100-41-4	Ethylbenzene	1.6	< 1.6	U
179601-23-1	m,p-Xylene	1.6	< 1.6	U
95-47-6	o-Xylene	1.6	< 1.6	U
1634-04-4	Methyl tert-Butyl Ether	1.6	< 1.6	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	130%
d8-Toluene	104%
Bromofluorobenzene	99.6%
d4-1,2-Dichlorobenzene	106%

QN14N : 08AUG

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-14-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN140
LIMS ID: 10-5881
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 15:29

Sample Amount: 3.90 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 27.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	86.4%
Bromofluorobenzene	80.8%
d4-1,2-Dichlorobenzene	111%

QN14 U : 000015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-15-1A**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN14P
LIMS ID: 10-5882
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 15:56

Sample Amount: 7.54 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 9.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.7	< 0.7	U
108-88-3	**Toluene**	**0.7**	**1.2**	
100-41-4	**Ethylbenzene**	**0.7**	**2.1**	
179601-23-1	**m,p-Xylene**	**0.7**	**18**	
95-47-6	**o-Xylene**	**0.7**	**10**	
1634-04-4	Methyl tert-Butyl Ether	0.7	< 0.7	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	84.0%
Bromofluorobenzene	78.0%
d4-1,2-Dichlorobenzene	99.4%

QN14 : 08DUS

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
QN14A	SB-08-6.0	Low	120%	106%	101%	105%	0
MB-031510	Method Blank	Low	108%	102%	95.9%	98.8%	0
LCS-031510	Lab Control	Low	102%	102%	102%	99.0%	0
LCSD-031510	Lab Control Dup	Low	105%	101%	102%	100%	0
QN14B	SB-08-16	Low	129%	104%	100%	103%	0
QN14C	SB-09-06	Low	128%	105%	100%	104%	0
QN14D	SB-09-16	Low	123%	105%	99.2%	101%	0
QN14E	SB-10-05	Low	116%	106%	102%	104%	0
QN14F	SB-10-16	Low	120%	100%	98.7%	104%	0
QN14G	SB-11-06	Low	124%	103%	100%	104%	0
QN14H	SB-11-16	Low	115%	99.6%	93.5%	111%	0
QN14I	SB-12-1	Low	114%	105%	108%	107%	0
QN14J	SB-12-5	Low	120%	101%	96.7%	103%	0
QN14K	SB-12-16	Low	128%	103%	102%	105%	0
QN14L	SB-13-5	Low	130%	105%	101%	105%	0
QN14M	SB-13-16	Low	121%	104%	97.5%	106%	0
QN14N	SB-14-5	Low	130%	104%	99.6%	106%	0
MB-031610	Method Blank	Low	89.1%	85.8%	80.1%	103%	0
LCS-031610	Lab Control	Low	86.9%	85.3%	86.6%	103%	0
LCSD-031610	Lab Control Dup	Low	88.2%	85.8%	87.0%	103%	0
QN14O	SB-14-16	Low	105%	86.4%	80.8%	111%	0
QN14P	SB-15-1A	Low	108%	84.0%	78.0%	99.4%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-5867 to 10-5882

QN14U:QQQU7

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
Page 1 of 1 **TB-030910-1**

Lab Sample ID: QN14Q
LIMS ID: 10-5883
Matrix: Water
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 16:23

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.0%
d8-Toluene	87.4%
Bromofluorobenzene	80.3%
d4-1,2-Dichlorobenzene	103%

QN14Q : 000119

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
QN14Q	Trip Blank	5	91.0%	87.4%	80.3%	103%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	83-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-5883 to 10-5883

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031510**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031510
LIMS ID: 10-5868
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/15/10 09:32
LCSD: 03/15/10 10:10

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	42.3	50.0	84.6%	47.8	50.0	95.6%	12.2%
Toluene	41.4	50.0	82.8%	46.5	50.0	93.0%	11.6%
Ethylbenzene	44.5	50.0	89.0%	49.6	50.0	99.2%	10.8%
m,p-Xylene	88.0	100	88.0%	98.0	100	98.0%	10.8%
o-Xylene	42.3	50.0	84.6%	46.7	50.0	93.4%	9.9%
Methyl tert-Butyl Ether	88.7	100	88.7%	94.7	100	94.7%	6.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	102%	105%
d8-Toluene	102%	101%
Bromofluorobenzene	102%	102%
d4-1,2-Dichlorobenzene	99.0%	100%

QN14 : 000850

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031610**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031610
LIMS ID: 10-5881
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/16/10 10:39
LCSD: 03/16/10 11:13

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	47.7	50.0	95.4%	48.7	50.0	97.4%	2.1%
Toluene	47.5	50.0	95.0%	47.3	50.0	94.6%	0.4%
Ethylbenzene	51.3	50.0	103%	51.5	50.0	103%	0.4%
m,p-Xylene	102	100	102%	101	100	101%	1.0%
o-Xylene	48.2	50.0	96.4%	48.6	50.0	97.2%	0.8%
Methyl tert-Butyl Ether	92.8	100	92.8%	97.1	100	97.1%	4.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.9%	88.2%
d8-Toluene	85.3%	85.8%
Bromofluorobenzene	86.6%	87.0%
d4-1,2-Dichlorobenzene	103%	103%

QN14 LI : 000551

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0315

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN14

Project: BLAINE

Lab File ID: MB0315

Lab Sample ID: MB0315

Date Analyzed: 03/15/10

Time Analyzed: 1037

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0315	LCS0315	LCS0315	0932
02	LCS0315	LCS0315	LCS0315A	1010
03	SB-08-6.0	QN14A	QN14A	1339
04	SB-08-16	QN14B	QN14B	1409
05	SB-09-06	QN14C	QN14C	1433
06	SB-09-16	QN14D	QN14D	1500
07	SB-10-05	QN14E	QN14E	1526
08	SB-10-16	QN14F	QN14F	1553
09	SB-11-06	QN14G	QN14G	1620
10	SB-11-16	QN14H	QN14H	1647
11	SB-12-1	QN14I	QN14I	1714
12	SB-12-5	QN14J	QN14J	1740
13	SB-12-16	QN14K	QN14K	1807
14	SB-13-5	QN14L	QN14L	1834
15	SB-13-16	QN14M	QN14M	1901
16	SB-14-5	QN14N	QN14N	1928
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COMMENTS:

QN14 : 000552

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031510**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031510
LIMS ID: 10-5868
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/15/10 10:37

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	102%
Bromofluorobenzene	95.9%
d4-1,2-Dichlorobenzene	98.8%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0316

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN14

Project: BLAINE

Lab File ID: MB0316

Lab Sample ID: MB0316

Date Analyzed: 03/16/10

Time Analyzed: 1140

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0316	LCS0316	LCS0316	1039
02	LCS0316	LCS0316	LCS0316A	1113
03	SB-14-16	QN14O	QN14O	1529
04	SB-15-1A	QN14P	QN14P	1556
05	TRIP BLANK	QN14Q	QN14Q	1623
06				
07				
08				
09				
10				
11				
12				
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28				
29				
30				

COMMENTS:

QN14U : 0005U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031610**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031610
LIMS ID: 10-5881
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 11:40

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.1%
d8-Toluene	85.8%
Bromofluorobenzene	80.1%
d4-1,2-Dichlorobenzene	103%

QN14 : 00065

PCB ANALYSIS

ON14 : 00055

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: SB-12-1
SAMPLE

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted: 03/15/10
Date Analyzed: 03/17/10 15:57
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.6 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 5.00
Silica Gel: Yes

Percent Moisture: 12.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	**Aroclor 1248**	**20**	**21**
11097-69-1	**Aroclor 1254**	**20**	**12 J**
11096-82-5	**Aroclor 1260**	**20**	**10 J**
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	68.9%
Tetrachlorometaxylene	64.1%

QN14I : 00057

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-031510	69.8%	51-112	62.2%	46-111	0
LCS-031510	71.2%	51-112	67.2%	46-111	0
SB-12-1	68.9%	42-127	64.1%	50-114	0
SB-12-1 MS	76.2%	42-127	69.5%	50-114	0
SB-12-1 MSD	87.5%	42-127	78.8%	50-114	0

Standard Sonication Control Limits
Prep Method: SW3550B
Log Number Range: 10-5875 to 10-5875

FORM-II SW8082

QN14 : 000558

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: SB-12-1
MS/MSD

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted MS/MSD: 03/15/10

Sample Amount MS: 25.4 g-dry-wt
MSD: 25.8 g-dry-wt

Date Analyzed MS: 03/17/10 16:20
MSD: 03/17/10 16:44

Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL

Instrument/Analyst MS: ECD7/JGR
MSD: ECD7/JGR

Dilution Factor MS: 5.00
MSD: 5.00

GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Silica Gel: Yes

Percent Moisture: 12.6%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 19.6 U	119	98.5	121%	130	96.9	134%	8.8%
Aroclor 1260	10.1 J	94.1	98.5	85.3%	104	96.9	96.9%	10.0%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

QN14I : 00050

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082

Sample ID: SB-12-1
MATRIX SPIKE

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted: 03/15/10
Date Analyzed: 03/17/10 16:20
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 5.00
Silica Gel: Yes

Percent Moisture: 12.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	---
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	**Aroclor 1248**	**20**	**68**
11097-69-1	**Aroclor 1254**	**20**	**58**
11096-82-5	Aroclor 1260	20	---
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.2%
Tetrachlorometaxylene	69.5%

QN14I : 080CSD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082

Sample ID: SB-12-1
MATRIX SPIKE DUP

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted: 03/15/10
Date Analyzed: 03/17/10 16:44
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.8 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 5.00
Silica Gel: Yes

Percent Moisture: 12.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	---
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	**Aroclor 1248**	**19**	**70**
11097-69-1	**Aroclor 1254**	**19**	**63**
11096-82-5	Aroclor 1260	19	---
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	78.8%

QN14I : 00061

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: LCS-031510
LAB CONTROL

Lab Sample ID: LCS-031510
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Date Extracted: 03/15/10
Date Analyzed: 03/17/10 15:33
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	101	100	101%
Aroclor 1260	77.9	100	77.9%

PCB Surrogate Recovery

Decachlorobiphenyl	71.2%
Tetrachlorometaxylene	67.2%

Results reported in µg/kg (ppb)

PCB METHOD BLANK SUMMARY

BLANK NO.

QN14MBS1

Lab Name: ANALYTICAL RESOURCES, INC
Client: SAIC

ARI Job No.: QN14
Project: BLAINE

Lab Sample ID: QN14MBS1
Lab File ID: 0317A006

Date Extracted: 03/15/10
Matrix: SOLID

Date Analyzed: 03/17/10
Instrument ID: ECD7

Time Analyzed: 1510
GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	QN14LCSS1	QN14LCSS1	03/17/10
02	SB-12-1	QN14I	03/17/10
03	SB-12-1 MS	QN14IMS	03/17/10
04	SB-12-1 MSD	QN14IMSD	03/17/10

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

QN14 : 000653

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-031510
METHOD BLANK

Lab Sample ID: MB-031510
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Date Extracted: 03/15/10
Date Analyzed: 03/17/10 15:10
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.0 g
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	4.0	< 4.0 U
11097-69-1	Aroclor 1254	4.0	< 4.0 U
11096-82-5	Aroclor 1260	4.0	< 4.0 U
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	69.8%
Tetrachlorometaxylene	62.2%

QN14 : 080611

TPHD ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 2
Matrix: Soil

QC Report No: QN14-Science App. International
Project: Blaine
188714

Data Release Authorized:
Reported: 03/17/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
QN14A	SB-08-6.0	03/11/10	03/15/10	1.00	Diesel	6.8	< 6.8 U
10-5867	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		81.5%
QN14B	SB-08-16	03/11/10	03/15/10	1.00	Diesel	7.6	< 7.6 U
10-5868	HC ID: ---		FID4A	1.0	Motor Oil	15	< 15 U
					o-Terphenyl		65.0%
QN14C	SB-09-06	03/11/10	03/15/10	1.00	Diesel	6.4	< 6.4 U
10-5869	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		76.5%
QN14D	SB-09-16	03/11/10	03/15/10	1.00	Diesel	6.1	< 6.1 U
10-5870	HC ID: ---		FID4A	1.0	Motor Oil	12	< 12 U
					o-Terphenyl		80.1%
QN14E	SB-10-05	03/11/10	03/15/10	1.00	Diesel	6.8	< 6.8 U
10-5871	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		79.9%
QN14F	SB-10-16	03/11/10	03/15/10	1.00	Diesel	7.8	< 7.8 U
10-5872	HC ID: ---		FID4A	1.0	Motor Oil	16	< 16 U
					o-Terphenyl		78.8%
QN14G	SB-11-06	03/11/10	03/16/10	1.00	Diesel	6.3	< 6.3 U
10-5873	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		83.0%
QN14H	SB-11-16	03/11/10	03/16/10	1.00	Diesel	7.2	< 7.2 U
10-5874	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		77.4%
QN14I	SB-12-1	03/11/10	03/16/10	1.00	**Diesel**	**140**	**1100**
10-5875	HC ID: **DIESEL/MOTOR OIL**		FID4A	25	**Motor Oil**	**270**	**7500**
					o-Terphenyl		87.8%
MB-031110	Method Blank	03/11/10	03/15/10	1.00	Diesel	5.0	< 5.0 U
10-5876	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		91.7%
QN14J	SB-12-5	03/11/10	03/16/10	1.00	Diesel	6.5	< 6.5 U
10-5876	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		68.6%
QN14K	SB-12-16	03/11/10	03/16/10	1.00	Diesel	6.4	< 6.4 U
10-5877	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		82.9%
QN14L	SB-13-5	03/11/10	03/16/10	1.00	Diesel	6.2	< 6.2 U
10-5878	HC ID: ---		FID4A	1.0	Motor Oil	12	< 12 U
					o-Terphenyl		84.5%

QN14 : 00065

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 2 of 2
Matrix: Soil

QC Report No: QN14-Science App. International
Project: Blaine
188714

Data Release Authorized:
Reported: 03/17/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
QN14M	SB-13-16	03/11/10	03/16/10	1.00	Diesel	6.7	< 6.7 U
10-5879	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		84.2%
QN14N	SB-14-5	03/11/10	03/16/10	1.00	Diesel	6.6	< 6.6 U
10-5880	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		86.4%
QN14O	SB-14-16	03/11/10	03/16/10	1.00	Diesel	6.8	< 6.8 U
10-5881	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		84.4%
QN14P	SB-15-1A	03/11/10	03/16/10	1.00	**Diesel**	**260**	**1700**
10-5882	HC ID: **DIESEL/MOTOR OIL**		FID4A	50	**Motor Oil**	**520**	**20000**
					o-Terphenyl		74.4%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

QN14J : R0067

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714

Client ID	OTER	TOT OUT
SB-08-6.0	81.5%	0
SB-08-16	65.0%	0
SB-09-06	76.5%	0
SB-09-16	80.1%	0
SB-10-05	79.9%	0
SB-10-16	78.8%	0
SB-11-06	83.0%	0
SB-11-16	77.4%	0
SB-12-1	87.8%	0
MB-031110	91.7%	0
LCS-031110	96.7%	0
SB-12-5	68.6%	0
SB-12-5 MS	81.6%	0
SB-12-5 MSD	86.6%	0
SB-12-16	82.9%	0
SB-13-5	84.5%	0
SB-13-16	84.2%	0
SB-14-5	86.4%	0
SB-14-16	84.4%	0
SB-15-1A	74.4%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(63-115)	(49-120)

Prep Method: SW3546
Log Number Range: 10-5867 to 10-5882

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: SB-12-5**
Page 1 of 1 **MS/MSD**

Lab Sample ID: QN14J
LIMS ID: 10-5876
Matrix: Soil
Data Release Authorized:
Reported: 03/17/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted MS/MSD: 03/11/10

Date Analyzed MS: 03/16/10 02:14
MSD: 03/16/10 02:41
Instrument/Analyst MS: FID/MS
MSD: FID/MS

Sample Amount MS: 7.61 g-dry-wt
MSD: 7.82 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.0
MSD: 1.0
Percent Moisture: 25.5%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 6.5	131	197	66.5%	135	192	70.3%	3.0%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	81.6%	86.6%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

FORM III

QN14J : 000059

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1

Sample ID: LCS-031110
LAB CONTROL

Lab Sample ID: LCS-031110
LIMS ID: 10-5876
Matrix: Soil
Data Release Authorized:
Reported: 03/17/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Extracted: 03/11/10
Date Analyzed: 03/15/10 19:44
Instrument/Analyst: FID/MS

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	126	150	84.0%

TPHD Surrogate Recovery

o-Terphenyl	96.7%

Results reported in mg/kg

FORM III

QN14 U : 000070

TPH METHOD BLANK SUMMARY

BLANK NO.

QN14MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QN14 Project No.: BLAINE

Date Extracted: 03/11/10 Matrix: SOLID

Date Analyzed : 03/15/10 Instrument ID : FID4A

Time Analyzed : 1916

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	QN14LCSS1	QN14LCSS1	03/15/10
02	SB-08-6.0	QN14A	03/15/10
03	SB-08-16	QN14B	03/15/10
04	SB-09-06	QN14C	03/15/10
05	SB-09-16	QN14D	03/15/10
06	SB-10-05	QN14E	03/15/10
07	SB-10-16	QN14F	03/15/10
08	SB-12-5	QN14J	03/16/10
09	SB-12-5 MS	QN14JMS	03/16/10
10	SB-12-5 MSD	QN14JMSD	03/16/10
11	SB-12-16	QN14K	03/16/10
12	SB-13-5	QN14L	03/16/10
13	SB-13-16	QN14M	03/16/10
14	SB-14-5	QN14N	03/16/10
15	SB-14-16	QN14O	03/16/10
16	SB-15-1A	QN14P	03/16/10
17	SB-11-06	QN14G	03/16/10
18	SB-11-16	QN14H	03/16/10
19	SB-12-1	QN14I	03/16/10

FORM IV TPH

QN14 : 000071

TPHG ANALYSIS

ON14 : 00072

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/08/10
Date Received: 03/10/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-031710 10-5867	Method Blank	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 96.0% 94.4%
QN14A 10-5867	SB-08-6.0	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 12 U --- 105% 101%
QN14B 10-5868	SB-08-16	03/17/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**12** GRO 110% 106%
QN14C 10-5869	SB-09-06	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 8.0 U --- 109% 104%
QN14D 10-5870	SB-09-16	03/17/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**11** GRO 105% 102%
QN14E 10-5871	SB-10-05	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 9.4 U --- 105% 101%
QN14F 10-5872	SB-10-16	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 10 U --- 101% 96.7%
QN14G 10-5873	SB-11-06	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 8.3 U --- 100% 98.0%
QN14H 10-5874	SB-11-16	03/17/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 12 U --- 108% 103%
QN14I 10-5875	SB-12-1	03/17/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**290** GAS/GRO 104% 117%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/09/10
Date Received: 03/10/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-031810	Method Blank	03/18/10	Dry	Gasoline	< 5.0 U
10-5876		PID3		HC ID	---
				Trifluorotoluene	88.7%
				Bromobenzene	89.6%
QN14J	SB-12-5	03/18/10	Dry	Gasoline	< 8.8 U
10-5876		PID3		HC ID	---
				Trifluorotoluene	92.6%
				Bromobenzene	92.0%
QN14K	SB-12-16	03/17/10	Dry	Gasoline	< 8.6 U
10-5877		PID3		HC ID	---
				Trifluorotoluene	103%
				Bromobenzene	102%
QN14L	SB-13-5	03/17/10	Dry	Gasoline	< 7.2 U
10-5878		PID3		HC ID	---
				Trifluorotoluene	103%
				Bromobenzene	103%
QN14M	SB-13-16	03/17/10	Dry	Gasoline	< 10 U
10-5879		PID3		HC ID	---
				Trifluorotoluene	102%
				Bromobenzene	101%
QN14N	SB-14-5	03/17/10	Dry	Gasoline	< 9.1 U
10-5880		PID3		HC ID	---
				Trifluorotoluene	99.8%
				Bromobenzene	98.6%
QN14O	SB-14-16	03/17/10	Dry	Gasoline	< 8.2 U
10-5881		PID3		HC ID	---
				Trifluorotoluene	100%
				Bromobenzene	97.5%
QN14P	SB-15-1A	03/18/10	Dry	**Gasoline**	**30**
10-5882		PID3		HC ID	GRO
				Trifluorotoluene	91.6%
				Bromobenzene	95.7%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: QN14
Matrix: Soil

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	BFB	TFT	BBZ	TOT OUT
MB-031710	NA	96.0%	94.4%	0
LCS-031710	NA	103%	101%	0
LCSD-031710	NA	95.8%	93.7%	0
SB-08-6.0	NA	105%	101%	0
SB-08-16	NA	110%	106%	0
SB-09-06	NA	109%	104%	0
SB-09-16	NA	105%	102%	0
SB-10-05	NA	105%	101%	0
SB-10-16	NA	101%	96.7%	0
SB-11-06	NA	100%	98.0%	0
SB-11-16	NA	108%	103%	0
SB-12-1	NA	104%	117%	0
MB-031810	NA	88.7%	89.6%	0
LCS-031810	NA	92.1%	91.8%	0
LCSD-031810	NA	93.0%	92.9%	0
SB-12-5	NA	92.6%	92.0%	0
SB-12-16	NA	103%	102%	0
SB-13-5	NA	103%	103%	0
SB-13-16	NA	102%	101%	0
SB-14-5	NA	99.8%	98.6%	0
SB-14-16	NA	100%	97.5%	0
SB-15-1A	NA	91.6%	95.7%	0
SB-15-1A MS	NA	95.5%	98.2%	0
SB-15-1A MSD	NA	108%	103%	0

	LCS/MB LIMITS	QC LIMITS
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(TFT) = Trifluorotoluene	(80-120)	(66-123)
(BBZ) = Bromobenzene	(80-120)	(62-130)

Log Number Range: 10-5867 to 10-5882

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/09/10
Date Received: 03/10/10

ARI ID	Client ID	Analysis Date	DL	Range	Result
QN14Q 10-5883	Trip Blank	03/17/10 PID3	1.0	Gasoline	< 0.25 U
				HC ID	---
				Trifluorotoluene	96.0%
				Bromobenzene	94.6%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

QN14 : 000076

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: QN14
Matrix: Water

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	TFT	BBZ	TOT OUT
Trip Blank	96.0%	94.6%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 10-5883 to 10-5883

QN14 : 00077

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: SB-15-1A
MATRIX SPIKE

Lab Sample ID: QN14P
LIMS ID: 10-5882
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Date Analyzed MS: 03/18/10 14:26
MSD: 03/18/10 14:51
Instrument/Analyst MS: PID3/MH
MSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount MS: 113 mg-dry-wt
MSD: 113 mg-dry-wt

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	30.2	72.0	44.2	94.6%	72.6	44.2	95.9%	0.8%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	95.5%	108%
Bromobenzene	98.2%	103%

QN14 : 000079

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: LCS-031710
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031710
LIMS ID: 10-5867
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/17/10 06:57
LCSD: 03/17/10 07:22
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	47.8	50.0	95.6%	46.4	50.0	92.8%	3.0%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	103%	95.8%
Bromobenzene	101%	93.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: LCS-031810
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031810
LIMS ID: 10-5876
Matrix: Soil
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/18/10 06:44
LCSD: 03/18/10 07:08
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	47.0	50.0	94.0%	46.4	50.0	92.8%	1.3%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	92.1%	93.0%
Bromobenzene	91.8%	92.9%

QN14 : 00000

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB0317S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN14 Project No.: 188714

Date Analyzed : 03/17/10 Matrix: SOIL

Time Analyzed : 0746 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0317S1	LCS0317	03/17/10
02	LCSD0317S1	LCSD0317	03/17/10
03	TRIP BLANK	QN14Q	03/17/10
04	SB-09-06	QN14C	03/17/10
05	SB-08-16	QN14B	03/17/10
06	SB-08-6.0	QN14A	03/17/10
07	SB-09-16	QN14D	03/17/10
08	SB-10-05	QN14E	03/17/10
09	SB-10-16	QN14F	03/17/10
10	SB-11-06	QN14G	03/17/10
11	SB-11-16	QN14H	03/17/10
12	SB-12-1	QN14I	03/17/10
13	SB-12-16	QN14K	03/17/10
14	SB-13-5	QN14L	03/17/10
15	SB-13-16	QN14M	03/17/10
16	SB-14-5	QN14N	03/17/10
17	SB-14-16	QN14O	03/17/10
18			
19			
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30			

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB0318S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN14 Project No.: 188714

Date Analyzed : 03/18/10 Matrix: SOIL

Time Analyzed : 0732 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0318S1	LCS0318	03/18/10
02	LCSD0318S1	LCSD0318	03/18/10
03	SB-12-5	QN14J	03/18/10
04	SB-15-1A	QN14P	03/18/10
05	SB-15-1A	QN14PMS	03/18/10
06	SB-15-1A	QN14PMSD	03/18/10
07			
08			
09			
10			
11			
12			
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QN14 : 00082

METALS ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-12-1
SAMPLE

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

Percent Total Solids: 88.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/11/10	6010B	03/19/10	**7439-92-1**	**Lead**	2	**28**	

U-Analyte undetected at given RL
RL-Reporting Limit

QN14I : 00001

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-12-1
MATRIX SPIKE

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	28	215	219	85.4%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

QN14I : 00085

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-12-1
DUPLICATE

Lab Sample ID: QN14I
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/10/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	28	28	0.0%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

QN14I : 00086

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: QN14LCS
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	199	200	99.5%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

QN14 : 00017

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: QN14MB
LIMS ID: 10-5875
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QN14-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/11/10	6010B	03/19/10	7439-92-1	Lead	2	2	U

U-Analyte undetected at given RL
RL-Reporting Limit

TOTAL SOLIDS

QN14 : 00099

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/19/10

Worklist: 9044
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1.	QN14A 10-5867				$ 73.80
2.	QN14B 10-5868				$ 64.70
3.	QN14C 10-5869				$ 75.20
4.	QN14D 10-5870				$ 78.50
5.	QN14E 10-5871				$ 73.80
6.	QN14F 10-5872				$ 62.70
7.	QN14G 10-5873				$ 74.40
8.	QN14H 10-5874				$ 64.30
9.	QN14I 10-5875				$ 87.40
10.	QN14J 10-5876				$ 74.50
11.	QN14K 10-5877				$ 72.00
12.	QN14L 10-5878				$ 75.70
13.	QN14M 10-5879				$ 74.30
14.	QN14N 10-5880				$ 73.70
15.	QN14O 10-5881				$ 72.50

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

QN14 II : 00000

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/19/10

Worklist: 9044
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
16. QN14P 10-5882	_____	_____		$ 91.00

Worklist ID: 9044 Page: 2
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Extractions Total Solids-extts
Data By: Rosie V. Rodriguez
Created: 3/11/10

Worklist: 6297
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QN14A 10-5867 SB-08-6.0	1.14	14.08	10.69	73.8	NR
2.	QN14B 10-5868 SB-08-16	1.12	11.25	7.67	64.7	NR
3.	QN14C 10-5869 SB-09-06	1.13	12.32	9.54	75.2	NR
4.	QN14D 10-5870 SB-09-16	1.13	13.69	10.99	78.5	NR
5.	QN14E 10-5871 SB-10-05	1.13	14.39	10.91	73.8	NR
6.	QN14F 10-5872 SB-10-16	1.12	14.90	9.76	62.7	NR
7.	QN14G 10-5873 SB-11-06	1.13	10.26	7.92	74.4	NR
8.	QN14H 10-5874 SB-11-16	1.13	12.35	8.35	64.3	NR
9.	QN14I 10-5875 SB-12-1	1.13	12.15	10.76	87.4	NR
10.	QN14J 10-5876 SB-12-5	1.14	10.95	8.45	74.5	NR
11.	QN14K 10-5877 SB-12-16	1.13	12.62	9.40	72.0	NR
12.	QN14L 10-5878 SB-13-5	1.15	11.26	8.80	75.7	NR
13.	QN14M 10-5879 SB-13-16	1.12	12.40	9.50	74.3	NR

Extractions Total Solids-extts
Data By: Rosie V. Rodriguez
Created: 3/11/10

Worklist: 6297
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	QN14N 10-5880 SB-14-5	1.12	13.71	10.40	73.7	NR
15.	QN14O 10-5881 SB-14-16	1.15	13.75	10.28	72.5	NR
16.	QN14P 10-5882 SB-15-1A	1.15	11.93	10.96	91.0	NR

BETX/TPHG Total Solids-betxts
Data By: Monica Herbert
Created: 3/19/10

Worklist: 9160
Analyst: MH
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1.	QN14A 10-5867			*	73.8
2.	QN14B 10-5868			*	64.7
3.	QN14C 10-5869			*	75.2
4.	QN14D 10-5870			*	78.5
5.	QN14E 10-5871			*	73.8
6.	QN14F 10-5872			*	62.7
7.	QN14G 10-5873			*	74.4
8.	QN14H 10-5874			*	64.3
9.	QN14I 10-5875			*	87.4
10.	QN14J 10-5876			*	74.5
11.	QN14K 10-5877			*	72.0
12.	QN14L 10-5878			*	75.7
13.	QN14M 10-5879			*	74.3
14.	QN14N 10-5880			*	73.7
15.	QN14O 10-5881			*	72.5

* - BETX TS Copied From VOA TS
% - BETX TS Copied From Metals TS
$ - BETX TS Copied From Extraction TS

BETX/TPHG Total Solids-betxts
Data By: Monica Herbert
Created: 3/19/10

Worklist: 9160
Analyst: MH
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
16. QN14P 10-5882	_____	_____	_____	* 91.0

Worklist ID: 9160 Page: 2
* - BETX TS Copied From VOA TS
% - BETX TS Copied From Metals TS
$ - BETX TS Copied From Extraction TS

Solids Data Entry Report Checked by: TDM Date: 3/12/10
Date: 03/12/10 Data Analyst: MH

Solids Determination performed on 03/11/10 by KM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
QN14	I	SB-12-1	1.007	10.355	9.266	88.35

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 26, 2010

Glen Vedera
SAIC
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

RE: Project: Blaine, 188714
ARI Job No: QN53

Dear Glen:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of the analyses are discussed in the Case Narrative.

An electronic copy of this data and associated raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com

Enclosures

cc: eFile QN53

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody
Documentation

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN53

prepared
by

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 1 of	
ARI Client Company: SAIC	Phone: 206-271-4691	Date: 3/9/10	Ice Present?
Client Contact: Glen Vedera		No. of Coolers:	Cooler Temps:
Client Project Name: Blaine			
Client Project #: 188714	Samplers: JW/AW/AL		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX & MTBE 8260C	NWTPH-Gx	NWTPH-Dx w/ silica gel	PCB 8082	VOC/TPHGHS 8260C	LEAD 6010B			Notes/Comments
SB-15B-1	3/9/10	1200	SOIL	7	/	/	/		/				
SB-15B-5	3/9/10	1215	SOIL	7	/	/	/		/				
SB-15B-16	3/9/10	1240	SOIL	7	/	/	/		/				
SB-18-5	3/10/10	0845	SOIL	9	/	/	/	3/10/10 no ECDs	/	/			Raw Product NO PCB in Sample
MW-3-3	3/10/10	0915	SOIL	7	/	/	/		/				
~~MW~~ SB-18-10	3/10/10	0925	Soil	7	/	/	/		/	/			
MW-4-3	3/10/10	0945	Soil	7	/	/	/		/				
SB-18-19	3/10/10	1010	Soil	7	/	/	/		/				
MW-3-5	3/10/10	1035	Soil	7	X	X	X		X				
SB-16-3	3/10/10	1045	Soil	8	X	X	X		X	X			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Worthy	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/11/10 1630	Date & Time: 3/11/10 1630	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 2 of	
ARI Client Company: SAIC	Phone: 206 271 4691	Date: 3/10/10	Ice Present?
Client Contact: Glen Cedeva		No. of Coolers:	Cooler Temps:
Client Project Name: Blaine			
Client Project #: 188714	Samplers: JS/AW/AL		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX + MTBE 8260C	Analysis Requested: NWTPH-Gx	Analysis Requested: NWTPH-Dx w/ silica gel	Analysis Requested: PCB 8082	Analysis Requested: VOC / TPHTS 8260C	Analysis Requested: Lead 6010B	Analysis Requested:	Analysis Requested:	Notes/Comments
MW-3-17	3/10/10	1105	Soil	8	X	X	X		X	X			
SB-17-5	3/10/10	1100	Soil	7	X	X	X		X				
SB-19-5	3/10/10	1210	Soil	7	X	X	X		X				
MW-4-16	3/10/10	1230	Soil	7	X	X	X		X				
MW-5-5	3/10/10	1350	Soil	8	✓	✓	✓		✓	✓			
SB-19-10	3/10/10	1400	Soil	8	✓	✓	✓	no PCB	✓	✓			
SB-19-16	3/10/10	1415	Soil	7									
SB-21-5	3/10/10	1500	Soil	8	✓	✓	✓		✓	✓			
SB-20-5	3/10/10	1505	Soil	8	✓	✓	✓		✓	✓			
SB-20-16	3/10/10	1510	Soil	7	✓	✓	✓		✓				

Comments/Special Instructions				
	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Ward	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/11/10 1630	Date & Time: 3/11/10 1630	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SAIC

Project Name: Plaine

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: QNS3

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	2.7	4.2 2.6

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90941619

Cooler Accepted by: _____ Date: 3/11/10 Time: 1735

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	3/3/10	

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: MM Date: 3/12/10 Time: 1100

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

No analyses listed for Sample SB-19-16 sample was logged for VOCs, TPHD, & TPHG

By: QV Date: 3/15/10

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	● ● ●

Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

QNS3 : 00005

Case Narrative

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN53

prepared
by

Analytical Resources, Inc.

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: SAIC
Project: Blaine, 188714
ARI Job No.: QN53

Sample Receipt

Twenty soil samples were received on March 11, 2010, under ARI job QN53. The cooler temperatures measured by IR thermometer following ARI SOP were 2.6, 2.7, and 4.2°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile by SW8260C

The samples and associated laboratory QC were analyzed within the recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Acid/Silica Cleaned TPH-Dx by NWTPH

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

QN53 : 00007

TPH-Gx by NWTPH

The samples and associated laboratory QC were analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recovery of Trifluorotoluene was outside the control limits high due to matrix effects for sample **SB-18-5**. All other surrogate percent recoveries were within control limits. No corrective action was required.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Total Metals by SW6010B

The samples and associated laboratory QC were digested and analyzed within method recommended holding times, using internal standards.

The method blank was clean at the reporting limit. The LCS percent recovery was within control limits.

The matrix spike percent recovery and duplicate RPD were within control limits.

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ON53 : 08619

SURR SOLUTIONS

3/6/2010

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1662-3	ABN	100/150	MEOH	10/08/10
B	1633-3	SIM PNA	15/75	MEOH	08/12/10
C*	1559-1	SIM ABN	25/37.5	MEOH	03/13/10
D	1689-2	LOW PCB	0.2	ACETONE	12/29/10
E	1661-2	HERB	62.5	MEOH	10/02/10
F	1683-3	PCP	12.5	ACETONE	12/09/10
G*	1534-1	1,4DIOXANE	100	MEOH	02/20/10
H	1594-1	OP-PEST	25	MEOH	04/01/10
I	1634-1	LOW S. PNA	1.5	MEOH	08/12/10
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1682-1	EPH	1500	MECL2	09/17/10
N	1689-3	PCB	2	ACETONE	12/29/10
O	1699-1	TPH	450	MECL2	07/02/10
P	1666-3	HCID	2250	MECL2	05/06/10
Q	1620-2	EDB	1	MEOH	06/22/10
R	1615-1	RESIN ACID	250	ACETONE	06/17/10
S#	1568-5	PBDE	.25	MEOH	NA
T	1674-2	ALKYL PNA	10	MEOH	07/30/10
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					
#project specific					
Y					
Z					

QN52 : 000011

LCS SOLUTIONS

3/6/2010

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1686-1	PCB 1660	20	ACETONE	09/01/10
2#	1472-3	BCOC PEST	10	ACETONE	NA
3	1620-4	PEST	02/04/20	ACETONE	06/26/10
4	1667-1	LOW PEST	0.2/0.4/2	ACETONE	06/26/10
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1705-1	ABN	100	ACETONE	07/01/10
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1698-2	ABN ACID	100/200	MECL2	07/14/10
11	1642-2	TPHD	15000	ACETONE	09/07/10
12	1698-1	ABN BASE	200	MEOH	07/24/10
13	1613-1	LOW PCB	2	ACETONE	06/08/10
14*	1547-1	LOW ABN ACID	10/20	MEOH	04/10/10
15*	1591-3	SIM PNA	15/75	MEOH	08/28/10
16	1602-3	DIOXANE	100	MEOH	03/20/10
17	1644-1	1248 PCB	10	ACETONE	09/10/10
18*	1591-4	LOW SIM PNA	1.5	ACETONE	08/28/10
19	1685-3	AK103	7500	ACETONE	09/03/10
20	1682-4	PNA	100	ACETONE	12/04/10
21	1593-3	SKY/BHT	100	MEOH	03/31/10
22	1702-4	HERB	12.5/12500	MEOH	04/17/10
23*	1505-1	LW ABN BASE	20	MEOH	03/20/10
24	1696-1	LOW ABN	10	ACETONE	01/13/11
25#	1481-1	DIPHENYL	100	MEOH	NA
26	1702-5	OP-PEST	25	MEOH	03/31/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1684-1	ADD. PEST	4	ACETONE	03/25/10
29#	1496-3	DECANES	100	MEOH	NA
30	1620-1	EDB/DBCP	0.2	MEOH	06/22/10

QN53 : 00012

LCS SOLUTIONS

3/6/2010

31	1596-1	TERPINEOL	100	MEOH	04/03/10
32	1619-3	GUAIACOL	50-200	ACETONE	04/30/10
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
50	1617-1	FULL RESIN	250	ACETONE	06/17/10
51	1696-3	DDTS	2.5	ACETONE	06/03/10
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1701-2	PBDE	0.5	ACETONE	02/10/11
#=PROJECT SPECIFIC SOLUTION					
	*=REVERIFIED SOLUTION				

ON53 : 000013

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

ON53 : 0001 U

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

ON53 : 0801C

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	Aqueous Samples		Soil / Sediment Samples	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

ONGC : 000017

Analytical Resources,Incorporated
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Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water	Soil	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [3]				
Diesel	-- - --	56 - 103	55 - 104	75 - 125
Diesel with Acid & Silica Clean-up	-- - --	43 - 100	54 - 96	(4)
Diesel with Silica Clean-up	-- --	43 - 100	54 - 96	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-- - --	57 - 120	58 - 121	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-- - --	51 - 120	63 - 115	(4)
o-Terphenyl Silica Clean-up		51 - 120	63 - 115	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	35 - 131	53 - 118	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-- - --	41 - 121	49 - 120	(4)
o-Terphenyl with Silica Clean-up		41 - 121	49 - 120	50 - 150

1. Control Limits calculated using all data generated 1/1/08 through 12/31/08
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
4. Alaska State UST Methods do not allow acid cleanup of sample extracts.

ONE : 00018

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

ONE3 : 00019

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	OC17	
Sample Matrix	Soil/Sediment	
Sample Weight/Volume	5.0 g	
Spike Level*	2.0 µg/kg	
Preparation Method	5030B	
ARI Analytical SOP	700S	Soil/Sediment
Instrument	Finn 5	Reporting
Date Analyzed	12/5/08	Limit
Reporting Units	µg/kg	µg/kg
Analyte	**MDL**	**RL**
Dichlorodifluoromethane	0.363	1.0
Chloromethane	0.094	1.0
Vinyl Chloride	0.157	1.0
Bromomethane	0.400	1.0
Chloroethane	0.436	1.0
Trichlorofluoromethane	0.384	1.0
Acrolein*	1.104	50.0
Acetone*	2.221	5.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.383	2.0
1,1-Dichloroethene	0.184	1.0
Bromoethane	0.516	2.0
Iodomethane	0.304	1.0
Methylene Chloride	0.706	2.0
Carbon Disulfide	0.352	1.0
Acrylonitrile	0.334	5.0
Methyl-t-butyl ether (MTBE)	0.166	1.0
trans-1,2-Dichloroethene	0.208	1.0
Vinyl Acetate	0.326	5.0
1,1-Dichloroethane	0.129	1.0
2-Butanone*	0.960	5.0
2,2-Dichloropropane	0.144	1.0
cis-1,2-Dichloroethene	0.110	1.0
Chloroform	0.347	1.0
Bromochloromethane	0.240	1.0
1,1,1-Trichloroethane	0.123	1.0
1,1-Dichloropropene	0.165	1.0
Carbon Tetrachloride	0.396	1.0
1,2-Dichloroethane	0.351	1.0

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
Benzene	0.218	**1.0**
Trichloroethene	0.510	**1.0**
1,2-Dichloropropane	0.357	**1.0**
Bromodichloromethane	0.481	**1.0**
Dibromomethane	0.265	**1.0**
2-Chloroethyl Vinyl Ether	0.453	**5.0**
4-Methyl-2-Pentanone*	0.952	**5.0**
cis-1,3-Dichloropropene	0.199	**1.0**
Toluene	0.225	**1.0**
trans-1,3-Dichloropropene	0.183	**1.0**
1,1,2-Trichloroethane	0.253	**1.0**
1,2-Dibromoethane	0.177	**1.0**
2-Hexanone*	0.823	**5.0**
1,3-Dichloropropane	0.125	**1.0**
Tetrachloroethene	0.400	**1.0**
Chlorodibromomethane	0.295	**1.0**
Chlorobenzene	0.098	**1.0**
1,1,1,2-Tetrachloroethane	0.170	**1.0**
Ethyl Benzene	0.087	**1.0**
m,p-Xylene	0.263	**1.0**
o-Xylene	0.205	**1.0**
Styrene	0.230	**1.0**
Bromoform	0.490	**1.0**
Isopropyl Benzene	0.173	**1.0**
1,1,2,2-Tetrachloroethane	0.218	**1.0**
1,2,3-Trichloropropane	0.483	**2.0**
trans-1,4-Dichloro-2-Butene	0.287	**5.0**
n-Propyl Benzene	0.144	**1.0**
Bromobenzene	0.166	**1.0**

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
1,3,5-Trimethylbenzene	0.164	**1.0**
2-Chlorotoluene	0.247	**1.0**
4-Chlorotoluene	0.066	**1.0**
t-Butylbenzene	0.115	**1.0**
1,2,4-Trimethylbenzene	0.114	**1.0**
s-Butylbenzene	0.179	**1.0**
4-Isopropyl Toluene	0.137	**1.0**
1,3-Dichlorobenzene	0.134	**1.0**
1,4-Dichlorobenzene	0.238	**1.0**
n-Butylbenzene	0.233	**1.0**
1,2-Dichlorobenzene	0.045	**1.0**
1,2-Dibromo-3-Chloropropane	0.600	**5.0**
1,2,4-Trichlorobenzene	0.270	**5.0**
Hexachloro-1,3-Butadiene	0.192	**5.0**
Naphthalene	0.097	**5.0**
1,2,3-Trichlorobenzene	0.179	**5.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.
* Compounds noted labeled with an * are spiked at higher concentrations.

MDL Verifications			
ARI Data File	**Date**	**Spike Level**	**Recovery**
OC17	12/5/08	0.5 µg/L	41 – 137 %

ONE : 00022

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MDL and RL Summary for Gasoline Range Organics Soil Samples – Methanol Extraction Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Sample Prep	MDL Spike Level mg/kg	MDL[1] mg/kg	MDL Date	RL mg/kg
NWTPH-G Toluene – Naphthalene	10g soil in 5 mL Methanol 500 mL FEV	10	2.39	1/6/10	**5**
8015B 2-Methylpentane – 1,2,4-Trimethylbenzene	10g soil in 5 mL Methanol 500 mL FEV	10	2.87	1/6/10	**5**
WA-TPH-G Toluene – nC_{12}	10g soil in 5 mL Methanol 500 mL FEV	10	2.41	1/6/10	**5**
AK101[2] nC_6 – nC_{10}	10g soil in 5 mL Methanol 500 mL FEV	10	2.95	1/6/10	**5**

MDL Verification

ARI Data File	Instrument	Extraction	Analysis Date	Spike Level	Gas Spike Average Recovery
QD23	PID3	MeOH	1/6/10	2.5 mg/kg	120 - 136%

(1) - ARI data file = QD23
(2) - Samples for AK101 analysis of soil are preserved with Methanol in the field.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

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MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Soil

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**50**
NW-TPH-D C_{12}-C_{24}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
AK102 C_{10}-C_{25}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
JP-4 Toluene-C14	2/13/07	JN65	Microwave	20 mg/kg	10g / 2.0 mL	3.19	**10.0**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**100**
NW-TPH-Dext C_{24}-C_{38}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.694	**10.0**
AK103 C_{25}-C_{36}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.859	**10.0**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**% Recovery**
NWTPH-Dext	5.0 mg/kg	Microwave	2/6/09	OE33	TPH-Dext = 104
AK103	5.0 mg/kg	Microwave	2/6/09	OE33	AK103 = 120
NWTPH-D / AK102	2.5 mg/kg	Microwave	2/6/09	OE33	NWTPH-D = 114, AK102 = 130
JP-4	20 mg/kg	Sonication	2/13/07	JN65	88

(1) - MDL studies performed on Instrument FID-3A.
(2) - RL based on extraction of 10 grams sample (dry weight).
(3) – MDL studies are not performed for HCID analyses.The reporting limits are specified in the method.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

ONE3 : 00024

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		ON85	ON85			
Sample Matrix		Water	Soil	Reporting	Reporting	Reporting
Sample Weight/Volume		50 mL	1 g	Limit	Limit	Limit
Final Digestate Volume		50 mL	100 mL	Water	Soil[3]	Tissue[4]
Analyte	MDL Spike mg/L	MDL- µg/L[1]	MDL- mg/kg[2]	RL- µg/L	RL- mg/kg	RL- mg/kg[4]
Aluminum	0.03	13.38	0.635	50	5.0	1.00
Antimony	0.05	2.97	0.454	50	5.0	1.00
Arsenic	0.05	5.35	0.198	50	5.0	1.00
Barium	0.003	1.23	0.073	3.0	0.3	0.06
Beryllium	0.001	0.13	0.006	1.0	0.1	0.02
Boron	0.01	4.97	0.071	20	2.0	0.40
Cadmium	0.002	0.47	0.039	2.0	0.2	0.04
Calcium	0.03	14.48	1.051	50	5.0	1.00
Chromium	0.004	1.80	0.105	5.0	0.5	0.10
Cobalt	0.002	0.16	0.039	3.0	0.3	0.06
Copper	0.004	0.61	0.063	2.0	0.2	0.04
Iron	0.01	8.36	0.313	50	5.0	1.00
Lead	0.01	1.49	0.307	20	2.0	0.40
Magnesium	0.04	3.96	0.190	50	5.0	1.00
Manganese	0.001	0.25	0.013	1.0	0.1	0.02
Molybdenum	0.005	2.10	0.063	5.0	0.5	0.10
Nickel	0.02	5.07	0.245	10	1.0	0.20
Potassium	1.50	119.29	13.210	500	50	10.00
Selenium	0.05	6.33	0.640	50	5.0	1.00
Silicon	0.03	9.49	0.570	60	(5)	(5)

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		ON85	ON85			
Sample Matrix		Water	Soil	Reporting	Reporting	Reporting
Sample Weight/Volume		50 mL	1 g	Limit	Limit	Limit
Final Digestate Volume		50 mL	100 mL	Water	Soil[3]	Tissue[4]
Analyte	**MDL Spike mg/L**	**MDL- µg/L[1]**	**MDL- mg/kg[2]**	**RL- µg/L**	**RL- mg/kg**	**RL- mg/kg[4]**
Silver	0.002	0.54	0.064	**3.0**	**0.3**	**0.06**
Sodium	0.05	54.57	0.658	**500**	**50**	**10**
Strontium	0.001	0.21	0.006	**1.0**	**0.1**	**0.02**
Thallium	0.05	5.02	0.588	**50**	**5.0**	**1.00**
Tin	0.01	2.02	0.206	**10**	**1.0**	**0.20**
Titanium	0.01	1.71	0.148	**5.0**	**0.5**	**0.10**
Vanadium	0.001	0.47	0.063	**3.0**	**0.3**	**0.06**
Zinc	0.01	1.45	0.610	**10.0**	**1.0**	**0.20**

Method Detection Limit (MDL) studies calculated in accordance with 40 CFR Part 136, Appendix B. MDLs are statistical measures of short term precision.

1) MDLs effective 3/20/09.
2) MDLs effective 4/22/09.
3) Soil and sediment reporting limit based on 100% solids, 1.0 g sample with 100 mL final volume.
4) Tissue reported on an "as received" wet weight basis. 5.0g sample with 100mL final volume.
5) ARI does not analyse for Silicon in solid or tissue samples.

Data Summary Package

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN53

prepared
by

Analytical Resources, Inc.

VOLATILE ANALYSIS

ON53 : 00028

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-15B-1**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53A
LIMS ID: 10-6197
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 16:19

Sample Amount: 4.48 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 7.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.1**	**2.7**	
108-88-3	**Toluene**	**1.1**	**9.7**	
100-41-4	**Ethylbenzene**	**1.1**	**4.6**	
179601-23-1	**m,p-Xylene**	**1.1**	**15**	
95-47-6	**o-Xylene**	**1.1**	**9.5**	
1634-04-4	Methyl tert-Butyl Ether	1.1	< 1.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	83.2%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	97.7%

QN53 : 00029

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-15B-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53B
LIMS ID: 10-6198
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 16:50

Sample Amount: 3.95 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.3**	**4.3**	
108-88-3	**Toluene**	**1.3**	**22**	
100-41-4	**Ethylbenzene**	**1.3**	**4.7**	
179601-23-1	**m,p-Xylene**	**1.3**	**16**	
95-47-6	**o-Xylene**	**1.3**	**5.2**	
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	87.5%
Bromofluorobenzene	83.3%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-15B-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53C
LIMS ID: 10-6199
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/09/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 17:16

Sample Amount: 4.95 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 27.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	1.0	1.8	
108-88-3	**Toluene**	1.0	4.9	
100-41-4	**Ethylbenzene**	1.0	0.9	J
179601-23-1	**m,p-Xylene**	1.0	2.9	
95-47-6	**o-Xylene**	1.0	0.9	J
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	87.6%
Bromofluorobenzene	84.9%
d4-1,2-Dichlorobenzene	108%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53D
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 18:33

Sample Amount: 0.090 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 13.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	56,000	290,000	
108-88-3	**Toluene**	56,000	1,700,000	
100-41-4	**Ethylbenzene**	56,000	600,000	
179601-23-1	**m,p-Xylene**	56,000	2,600,000	
95-47-6	**o-Xylene**	56,000	910,000	
1634-04-4	Methyl tert-Butyl Ether	56,000	< 56,000	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	86.9%
d8-Toluene	84.9%
Bromofluorobenzene	81.4%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-3-3**
 SAMPLE

Lab Sample ID: QN53E
LIMS ID: 10-6201
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 19:00

Sample Amount: 58.2 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 27.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	86	220	
108-88-3	**Toluene**	86	170	
100-41-4	**Ethylbenzene**	86	460	
179601-23-1	**m,p-Xylene**	86	1,900	
95-47-6	**o-Xylene**	86	59	J
1634-04-4	Methyl tert-Butyl Ether	86	< 86	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.0%
d8-Toluene	85.4%
Bromofluorobenzene	82.1%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-10**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53F
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 13:36

Sample Amount: 16.3 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**310**	**3,800**	
108-88-3	**Toluene**	**310**	**3,800**	
100-41-4	**Ethylbenzene**	**310**	**1,600**	
179601-23-1	**m,p-Xylene**	**310**	**5,400**	
95-47-6	**o-Xylene**	**310**	**2,200**	
1634-04-4	Methyl tert-Butyl Ether	310	< 310	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.0%
d8-Toluene	85.5%
Bromofluorobenzene	82.4%
d4-1,2-Dichlorobenzene	103%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-4-3**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53G
LIMS ID: 10-6203
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 12:42

Sample Amount: 0.528 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**9,500**	**21,000**	
108-88-3	**Toluene**	**9,500**	**92,000**	
100-41-4	**Ethylbenzene**	**9,500**	**19,000**	
179601-23-1	**m,p-Xylene**	**9,500**	**72,000**	
95-47-6	**o-Xylene**	**9,500**	**23,000**	
1634-04-4	Methyl tert-Butyl Ether	9,500	< 9,500	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.1%
d8-Toluene	86.5%
Bromofluorobenzene	80.7%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-19**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53H
LIMS ID: 10-6204
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 18:44

Sample Amount: 12.9 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 8.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**390**	**390**	
108-88-3	**Toluene**	**390**	**2,500**	
100-41-4	**Ethylbenzene**	**390**	**940**	
179601-23-1	**m,p-Xylene**	**390**	**4,000**	
95-47-6	**o-Xylene**	**390**	**1,500**	
1634-04-4	Methyl tert-Butyl Ether	390	< 390	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	85.6%
Bromofluorobenzene	82.0%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-3-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53I
LIMS ID: 10-6205
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 16:46

Sample Amount: 3.73 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.3**	**0.8**	**J**
108-88-3	**Toluene**	**1.3**	**0.7**	**J**
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	86.2%
Bromofluorobenzene	85.7%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-16-3**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53J
LIMS ID: 10-6206
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 19:57

Sample Amount: 3.58 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 31.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	1.4	170	
108-88-3	**Toluene**	1.4	4.4	
100-41-4	**Ethylbenzene**	1.4	32	
179601-23-1	**m,p-Xylene**	1.4	130	
95-47-6	**o-Xylene**	1.4	2.6	
1634-04-4	Methyl tert-Butyl Ether	1.4	< 1.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.1%
d8-Toluene	85.1%
Bromofluorobenzene	85.8%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-3-17**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53K
LIMS ID: 10-6207
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 20:24

Sample Amount: 5.55 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 8.9%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.9	< 0.9	U
108-88-3	Toluene	0.9	< 0.9	U
100-41-4	Ethylbenzene	0.9	< 0.9	U
179601-23-1	m,p-Xylene	0.9	< 0.9	U
95-47-6	o-Xylene	0.9	< 0.9	U
1634-04-4	Methyl tert-Butyl Ether	0.9	< 0.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	87.2%
Bromofluorobenzene	84.2%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-17-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53L
LIMS ID: 10-6208
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 11:33

Sample Amount: 1.11 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 26.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**4,500**	**4,500**	
108-88-3	**Toluene**	**4,500**	**16,000**	
100-41-4	**Ethylbenzene**	**4,500**	**14,000**	
179601-23-1	**m,p-Xylene**	**4,500**	**58,000**	
95-47-6	**o-Xylene**	**4,500**	**15,000**	
1634-04-4	Methyl tert-Butyl Ether	4,500	< 4,500	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.0%
d8-Toluene	85.8%
Bromofluorobenzene	80.7%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

QN53 : 00010

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-19-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53M
LIMS ID: 10-6209
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 17:07

Sample Amount: 6.00 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**830**	**690**	**J**
108-88-3	**Toluene**	**830**	**2,000**	
100-41-4	**Ethylbenzene**	**830**	**2,000**	
179601-23-1	**m,p-Xylene**	**830**	**7,700**	
95-47-6	**o-Xylene**	**830**	**2,000**	
1634-04-4	Methyl tert-Butyl Ether	830	< 830	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.0%
d8-Toluene	86.1%
Bromofluorobenzene	79.3%
d4-1,2-Dichlorobenzene	103%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-4-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53N
LIMS ID: 10-6210
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 14:26

Sample Amount: 2.64 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 31.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.9	< 1.9	U
108-88-3	Toluene	1.9	< 1.9	U
100-41-4	Ethylbenzene	1.9	< 1.9	U
179601-23-1	m,p-Xylene	1.9	< 1.9	U
95-47-6	o-Xylene	1.9	< 1.9	U
1634-04-4	Methyl tert-Butyl Ether	1.9	< 1.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	82.8%
Bromofluorobenzene	78.7%
d4-1,2-Dichlorobenzene	113%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-5-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53O
LIMS ID: 10-6211
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 14:53

Sample Amount: 5.46 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 7.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.9	1.0	
108-88-3	Toluene	0.9	1.1	
100-41-4	Ethylbenzene	0.9	0.5	J
179601-23-1	m,p-Xylene	0.9	2.0	
95-47-6	o-Xylene	0.9	0.8	J
1634-04-4	Methyl tert-Butyl Ether	0.9	< 0.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	85.8%
Bromofluorobenzene	84.4%
d4-1,2-Dichlorobenzene	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-19-10**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53P
LIMS ID: 10-6212
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 12:29

Sample Amount: 3.57 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1,400**	**2,200**	
108-88-3	**Toluene**	**1,400**	**11,000**	
100-41-4	**Ethylbenzene**	**1,400**	**6,100**	
179601-23-1	**m,p-Xylene**	**1,400**	**25,000**	
95-47-6	**o-Xylene**	**1,400**	**7,400**	
1634-04-4	Methyl tert-Butyl Ether	1,400	< 1,400	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.2%
d8-Toluene	86.8%
Bromofluorobenzene	82.0%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

QN53 : 000411

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-19-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53Q
LIMS ID: 10-6213
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 13:53

Sample Amount: 71.8 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 21.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	70	230	
108-88-3	Toluene	70	2,000	
100-41-4	Ethylbenzene	70	930	
179601-23-1	m,p-Xylene	70	4,300	
95-47-6	o-Xylene	70	1,500	
1634-04-4	Methyl tert-Butyl Ether	70	< 70	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.4%
d8-Toluene	85.1%
Bromofluorobenzene	82.5%
d4-1,2-Dichlorobenzene	103%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

QN53 : 0001S

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-21-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53R
LIMS ID: 10-6214
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 19:11

Sample Amount: 42.7 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 26.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**120**	**3,700**	
108-88-3	Toluene	120	72	J
100-41-4	**Ethylbenzene**	**120**	**1,700**	
179601-23-1	**m,p-Xylene**	**120**	**290**	
95-47-6	o-Xylene	120	< 120	U
1634-04-4	Methyl tert-Butyl Ether	120	< 120	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	87.5%
d8-Toluene	83.6%
Bromofluorobenzene	82.2%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-20-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53S
LIMS ID: 10-6215
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 13:22

Sample Amount: 70.5 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 22.9%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**71**	**160**	
108-88-3	**Toluene**	**71**	**100**	
100-41-4	**Ethylbenzene**	**71**	**320**	
179601-23-1	**m,p-Xylene**	**71**	**1,100**	
95-47-6	**o-Xylene**	**71**	**160**	
1634-04-4	Methyl tert-Butyl Ether	71	< 71	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	87.9%
d8-Toluene	85.1%
Bromofluorobenzene	81.9%
d4-1,2-Dichlorobenzene	103%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-20-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN53T
LIMS ID: 10-6216
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 16:40

Sample Amount: 6.07 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 8.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.8	< 0.8	U
108-88-3	Toluene	0.8	< 0.8	U
100-41-4	Ethylbenzene	0.8	< 0.8	U
179601-23-1	m,p-Xylene	0.8	< 0.8	U
95-47-6	o-Xylene	0.8	< 0.8	U
1634-04-4	Methyl tert-Butyl Ether	0.8	< 0.8	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	85.3%
Bromofluorobenzene	83.3%
d4-1,2-Dichlorobenzene	105%

QN53 : 00015

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-031710	Method Blank	Low	91.7%	86.6%	80.9%	102%	0
LCS-031710	Lab Control	Low	84.8%	85.7%	85.6%	102%	0
LCSD-031710	Lab Control Dup	Low	83.2%	83.9%	84.0%	102%	0
QN53A	SB-15B-1	Low	102%	83.2%	81.3%	97.7%	0
MB-031610	Method Blank	Low	89.1%	85.8%	80.1%	103%	0
LCS-031610	Lab Control	Low	86.9%	85.3%	86.6%	103%	0
LCSD-031610	Lab Control Dup	Low	88.2%	85.8%	87.0%	103%	0
QN53B	SB-15B-5	Low	102%	87.5%	83.3%	105%	0
QN53C	SB-15B-16	Low	106%	87.6%	84.9%	108%	0
MB-031710	Method Blank	Med	91.7%	86.6%	80.9%	102%	0
LCS-031710	Lab Control	Med	84.8%	85.7%	85.6%	102%	0
LCSD-031710	Lab Control Dup	Med	83.2%	83.9%	84.0%	102%	0
QN53D	SB-18-5	Med	86.9%	84.9%	81.4%	102%	0
QN53E	MW-3-3	Med	89.0%	85.4%	82.1%	102%	0
MB-031810	Method Blank	Med	91.5%	86.4%	81.3%	100%	0
LCS-031810	Lab Control	Med	86.4%	84.8%	86.6%	102%	0
LCSD-031810	Lab Control Dup	Med	87.0%	86.2%	86.3%	102%	0
QN53F	SB-18-10	Med	95.0%	85.5%	82.4%	103%	0
QN53FMS	SB-18-10	Med	86.2%	83.7%	84.9%	102%	0
QN53FMSD	SB-18-10	Med	89.9%	83.8%	84.5%	102%	0
QN53G	MW-4-3	Med	98.1%	86.5%	80.7%	102%	0
QN53H	SB-18-19	Med	91.5%	85.6%	82.0%	102%	0
QN53I	MW-3-5	Low	107%	86.2%	85.7%	106%	0
QN53J	SB-16-3	Low	99.1%	85.1%	85.8%	105%	0
QN53K	MW-3-17	Low	110%	87.2%	84.2%	105%	0
MB-031910	Method Blank	Med	90.8%	88.3%	81.0%	99.5%	0
LCS-031910	Lab Control	Med	85.7%	85.9%	83.7%	102%	0
LCSD-031910	Lab Control Dup	Med	89.1%	85.3%	85.3%	102%	0
QN53L	SB-17-5	Med	90.0%	85.8%	80.7%	102%	0
QN53M	SB-19-5	Med	91.0%	86.1%	79.3%	103%	0
MB-031810	Method Blank	Low	91.5%	86.4%	81.3%	100%	0
LCS-031810	Lab Control	Low	86.4%	84.8%	86.6%	102%	0
LCSD-031810	Lab Control Dup	Low	87.0%	86.2%	86.3%	102%	0
QN53N	MW-4-16	Low	103%	82.8%	78.7%	113%	0
QN53O	MW-5-5	Low	103%	85.8%	84.4%	107%	0
QN53P	SB-19-10	Med	91.2%	86.8%	82.0%	101%	0
QN53Q	SB-19-16	Med	91.4%	85.1%	82.5%	103%	0
QN53R	SB-21-5	Med	87.5%	83.6%	82.2%	101%	0
QN53S	SB-20-5	Med	87.9%	85.1%	81.9%	103%	0
QN53T	SB-20-16	Low	101%	85.3%	83.3%	105%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-6197 to 10-6216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-10**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: QN53F
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst MS: FINN5/PAB
MSD: FINN5/PAB
Date Analyzed MS: 03/18/10 18:27
MSD: 03/18/10 18:54

Sample Amount MS: 16.3 mg-dry-wt
MSD: 16.3 mg-dry-wt
Purge Volume MS: 5.0 mL
MSD: 5.0 mL
Moisture: 23.0%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzene	3820	19000	15300	99.2%	18500	15300	95.9%	2.7%
Toluene	3790	18600	15300	96.8%	18000	15300	92.9%	3.3%
Ethylbenzene	1630	17800	15300	106%	17400	15300	103%	2.3%
m,p-Xylene	5350	37100	30700	103%	35700	30700	98.9%	3.8%
o-Xylene	2220	17800	15300	102%	17200	15300	97.9%	3.4%
Methyl tert-Butyl Ether	< 306 U	29500	30700	96.1%	30200	30700	98.4%	2.3%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-10**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: QN53F
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 18:27

Sample Amount: 16.3 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	310	---	
108-88-3	Toluene	310	---	
100-41-4	Ethylbenzene	310	---	
179601-23-1	m,p-Xylene	310	---	
95-47-6	o-Xylene	310	---	
1634-04-4	Methyl tert-Butyl Ether	310	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	86.2%
d8-Toluene	83.7%
Bromofluorobenzene	84.9%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-18-10**
Page 1 of 1 **MATRIX SPIKE DUP**

Lab Sample ID: QN53F
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 18:54

Sample Amount: 16.3 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	310	---	
108-88-3	Toluene	310	---	
100-41-4	Ethylbenzene	310	---	
179601-23-1	m,p-Xylene	310	---	
95-47-6	o-Xylene	310	---	
1634-04-4	Methyl tert-Butyl Ether	310	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.9%
d8-Toluene	83.8%
Bromofluorobenzene	84.5%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031610**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031610
LIMS ID: 10-6198
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/16/10 10:39
LCSD: 03/16/10 11:13

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	47.7	50.0	95.4%	48.7	50.0	97.4%	2.1%
Toluene	47.5	50.0	95.0%	47.3	50.0	94.6%	0.4%
Ethylbenzene	51.3	50.0	103%	51.5	50.0	103%	0.4%
m,p-Xylene	102	100	102%	101	100	101%	1.0%
o-Xylene	48.2	50.0	96.4%	48.6	50.0	97.2%	0.8%
Methyl tert-Butyl Ether	92.8	100	92.8%	97.1	100	97.1%	4.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.9%	88.2%
d8-Toluene	85.3%	85.8%
Bromofluorobenzene	86.6%	87.0%
d4-1,2-Dichlorobenzene	103%	103%

QN53 : 00053

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031710**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-031710
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/17/10 10:27
LCSD: 03/17/10 11:02

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2400	2500	96.0%	2410	2500	96.4%	0.4%
Toluene	2350	2500	94.0%	2410	2500	96.4%	2.5%
Ethylbenzene	2560	2500	102%	2570	2500	103%	0.4%
m,p-Xylene	5050	5000	101%	5160	5000	103%	2.2%
o-Xylene	2400	2500	96.0%	2450	2500	98.0%	2.1%
Methyl tert-Butyl Ether	4650	5000	93.0%	4660	5000	93.2%	0.2%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	84.8%	83.2%
d8-Toluene	85.7%	83.9%
Bromofluorobenzene	85.6%	84.0%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031710**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031710
LIMS ID: 10-6197
Matrix: Soil
Data Release Authorized: B
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/17/10 10:27
LCSD: 03/17/10 11:02

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	48.1	50.0	96.2%	48.2	50.0	96.4%	0.2%
Toluene	47.1	50.0	94.2%	48.1	50.0	96.2%	2.1%
Ethylbenzene	51.1	50.0	102%	51.5	50.0	103%	0.8%
m,p-Xylene	101	100	101%	103	100	103%	2.0%
o-Xylene	48.0	50.0	96.0%	48.9	50.0	97.8%	1.9%
Methyl tert-Butyl Ether	93.0	100	93.0%	93.1	100	93.1%	0.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	84.8%	83.2%
d8-Toluene	85.7%	83.9%
Bromofluorobenzene	85.6%	84.0%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031810**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031810
LIMS ID: 10-6210
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/18/10 10:22
LCSD: 03/18/10 10:56

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	51.2	50.0	102%	50.9	50.0	102%	0.6%
Toluene	50.6	50.0	101%	50.3	50.0	101%	0.6%
Ethylbenzene	54.1	50.0	108%	52.9	50.0	106%	2.2%
m,p-Xylene	108	100	108%	104	100	104%	3.8%
o-Xylene	51.5	50.0	103%	50.0	50.0	100%	3.0%
Methyl tert-Butyl Ether	100	100	100%	97.6	100	97.6%	2.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.4%	87.0%
d8-Toluene	84.8%	86.2%
Bromofluorobenzene	86.6%	86.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031810**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031810
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/18/10 10:22
LCSD: 03/18/10 10:56

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2560	2500	102%	2550	2500	102%	0.4%
Toluene	2530	2500	101%	2510	2500	100%	0.8%
Ethylbenzene	2710	2500	108%	2640	2500	106%	2.6%
m,p-Xylene	5400	5000	108%	5200	5000	104%	3.8%
o-Xylene	2570	2500	103%	2500	2500	100%	2.8%
Methyl tert-Butyl Ether	5020	5000	100%	4880	5000	97.6%	2.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.4%	87.0%
d8-Toluene	84.8%	86.2%
Bromofluorobenzene	86.6%	86.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031910**
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031910
LIMS ID: 10-6208
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/19/10 09:36
LCSD: 03/19/10 10:11

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2240	2500	89.6%	2500	2500	100%	11.0%
Toluene	2250	2500	90.0%	2470	2500	98.8%	9.3%
Ethylbenzene	2390	2500	95.6%	2660	2500	106%	10.7%
m,p-Xylene	4690	5000	93.8%	5240	5000	105%	11.1%
o-Xylene	2240	2500	89.6%	2490	2500	99.6%	10.6%
Methyl tert-Butyl Ether	4460	5000	89.2%	4860	5000	97.2%	8.6%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	85.7%	89.1%
d8-Toluene	85.9%	85.3%
Bromofluorobenzene	83.7%	85.3%
d4-1,2-Dichlorobenzene	102%	102%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0316

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN53

Project: BLAINE

Lab File ID: MB0316

Lab Sample ID: MB0316

Date Analyzed: 03/16/10

Time Analyzed: 1140

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0316	LCS0316	LCS0316	1039
02	LCS0316	LCS0316	LCS0316A	1113
03	SB-15B-5	QN53B	QN53B	1650
04	SB-15B-16	QN53C	QN53C	1716
05	SB-16-3	QN53J	QN53J	1957
06	MW-3-17	QN53K	QN53K	2024
07				
08				
09				
10				
11				
12				
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30				

COMMENTS:

QN53 : 00465

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031610**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031610
LIMS ID: 10-6198
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/16/10 11:40

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.1%
d8-Toluene	85.8%
Bromofluorobenzene	80.1%
d4-1,2-Dichlorobenzene	103%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0317

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN53

Project: BLAINE

Lab File ID: MB0317

Lab Sample ID: MB0317

Date Analyzed: 03/17/10

Time Analyzed: 1129

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0317	LCS0317	LCS0317	1027
02	LCS0317	LCS0317	LCS0317A	1102
03	SB-15B-1	QN53A	QN53A2	1619
04	MW-3-5	QN53I	QN53I1	1646
05	SB-18-5	QN53D	QN53D2	1833
06	MW-3-3	QN53E	QN53E2	1900
07				
08				
09				
10				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031710**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031710
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 11:29

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.7%
d8-Toluene	86.6%
Bromofluorobenzene	80.9%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031710**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031710
LIMS ID: 10-6197
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/17/10 11:29

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.7%
d8-Toluene	86.6%
Bromofluorobenzene	80.9%
d4-1,2-Dichlorobenzene	102%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0318

Lab Name: ANALYTICAL RESOURCES, INC — Client: SAIC

ARI Job No: QN53 — Project: BLAINE

Lab File ID: MB0318 — Lab Sample ID: MB0318

Date Analyzed: 03/18/10 — Time Analyzed: 1123

Instrument ID: FINN5 — Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0318	LCS0318	LCS0318	1022
02	LCS0318	LCS0318	LCS0318A	1056
03	MW-4-3	QN53G	QN53G3	1242
04	SB-18-10	QN53F	QN53F4	1336
05	MW-4-16	QN53N	QN53N	1426
06	MW-5-5	QN53O	QN53O	1453
07	SB-20-16	QN53T	QN53T	1640
08	SB-19-5	QN53M	QN53M	1707
09	SB-18-10 MS	QN53FMS	QN53FMS	1827
10	SB-18-10 MSD	QN53FMSD	QN53FMSD	1854
11				
12				
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29				
30				

COMMENTS:

QN53 : 00061

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C
Page 1 of 1

Sample ID: MB-031810
METHOD BLANK

Lab Sample ID: MB-031810
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 11:23

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	86.4%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031810**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031810
LIMS ID: 10-6210
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 11:23

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	86.4%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	100%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0319

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN53

Project: BLAINE

Lab File ID: MB0319

Lab Sample ID: MB0319

Date Analyzed: 03/19/10

Time Analyzed: 1038

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0319	LCS0319	LCS0319	0936
02	LCS0319	LCS0319	LCS0319A	1011
03	SB-17-5	QN53L	QN53L2	1133
04	SB-19-10	QN53P	QN53P2	1229
05	SB-20-5	QN53S	QN53S2	1322
06	SB-19-16	QN53Q	QN53Q2	1353
07	SB-18-19	QN53H	QN53H5	1844
08	SB-21-5	QN53R	QN53R3	1911
09				
10				
11				
12				
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30				

COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031910**
METHOD BLANK

Lab Sample ID: MB-031910
LIMS ID: 10-6208
Matrix: Soil
Data Release Authorized: B
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 10:38

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.8%
d8-Toluene	88.3%
Bromofluorobenzene	81.0%
d4-1,2-Dichlorobenzene	99.5%

TPHD ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 2
Matrix: Soil

QC Report No: QN53-Science App. International
Project: Blaine
188714

Data Release Authorized:
Reported: 03/23/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
QN53A	SB-15B-1	03/16/10	03/18/10	1.00	**Diesel**	**260**	**1100**
10-6197	HC ID: **DIESEL/MOTOR OIL**		FID4A	50	**Motor Oil**	**520**	**7300**
					o-Terphenyl		D
QN53B	SB-15B-5	03/16/10	03/17/10	1.00	**Diesel**	**6.7**	**12**
10-6198	HC ID: **DIESEL/MOTOR OIL**		FID4A	1.0	**Motor Oil**	**13**	**66**
					o-Terphenyl		78.0%
QN53C	SB-15B-16	03/16/10	03/17/10	1.00	Diesel	6.8	< 6.8 U
10-6199	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		73.5%
QN53D	SB-18-5	03/16/10	03/17/10	1.00	**Diesel**	**54**	**1100**
10-6200	HC ID: **DIESEL**		FID4A	10	Motor Oil	110	< 110 U
					o-Terphenyl		99.3%
QN53E	MW-3-3	03/16/10	03/17/10	1.00	Diesel	6.8	< 6.8 U
10-6201	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		78.9%
QN53F	SB-18-10	03/16/10	03/17/10	1.00	Diesel	6.2	< 6.2 U
10-6202	HC ID: ---		FID4A	1.0	Motor Oil	12	< 12 U
					o-Terphenyl		83.7%
QN53G	MW-4-3	03/16/10	03/17/10	1.00	Diesel	6.4	< 6.4 U
10-6203	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		78.9%
QN53H	SB-18-19	03/16/10	03/17/10	1.00	Diesel	5.3	< 5.3 U
10-6204	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		89.2%
QN53I	MW-3-5	03/16/10	03/17/10	1.00	Diesel	6.5	< 6.5 U
10-6205	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		72.5%
QN53J	SB-16-3	03/16/10	03/17/10	1.00	Diesel	7.0	< 7.0 U
10-6206	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		77.9%
QN53K	MW-3-17	03/16/10	03/17/10	1.00	Diesel	5.1	< 5.1 U
10-6207	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		90.1%
QN53L	SB-17-5	03/16/10	03/17/10	1.00	**Diesel**	**6.6**	**14**
10-6208	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil**	**13**	**21**
					o-Terphenyl		78.6%
QN53M	SB-19-5	03/16/10	03/17/10	1.00	**Diesel**	**6.2**	**18**
10-6209	HC ID: **DIESEL**		FID4A	1.0	Motor Oil	12	< 12 U
					o-Terphenyl		75.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned

Matrix: Soil

QC Report No: QN53-Science App. International
Project: Blaine
188714

Data Release Authorized:
Reported: 03/23/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
QN53N	MW-4-16	03/16/10	03/17/10	1.00	Diesel	7.2	< 7.2 U
10-6210	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		70.3%
QN53O	MW-5-5	03/16/10	03/18/10	1.00	Diesel	5.0	< 5.0 U
10-6211	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		82.3%
QN53P	SB-19-10	03/16/10	03/18/10	1.00	Diesel	6.2	< 6.2 U
10-6212	HC ID: ---		FID4A	1.0	Motor Oil	12	< 12 U
					o-Terphenyl		75.7%
QN53Q	SB-19-16	03/16/10	03/18/10	1.00	Diesel	6.0	< 6.0 U
10-6213	HC ID: **MOTOR OIL**		FID4A	1.0	**Motor Oil**	**12**	**17**
					o-Terphenyl		74.5%
QN53R	SB-21-5	03/16/10	03/18/10	1.00	Diesel	6.8	< 6.8 U
10-6214	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		78.7%
MB-031610	Method Blank	03/16/10	03/18/10	1.00	Diesel	5.0	< 5.0 U
10-6215	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		90.6%
QN53S	SB-20-5	03/16/10	03/18/10	1.00	Diesel	6.4	< 6.4 U
10-6215	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		76.2%
QN53T	SB-20-16	03/16/10	03/18/10	1.00	Diesel	5.2	< 5.2 U
10-6216	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		89.5%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

QN53 : 00071

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714

Client ID	OTER	TOT OUT
SB-15B-1	D	0
SB-15B-5	78.0%	0
SB-15B-16	73.5%	0
SB-18-5	99.3%	0
MW-3-3	78.9%	0
SB-18-10	83.7%	0
MW-4-3	78.9%	0
SB-18-19	89.2%	0
MW-3-5	72.5%	0
SB-16-3	77.9%	0
MW-3-17	90.1%	0
SB-17-5	78.6%	0
SB-19-5	75.8%	0
MW-4-16	70.3%	0
MW-5-5	82.3%	0
SB-19-10	75.7%	0
SB-19-16	74.5%	0
SB-21-5	78.7%	0
MB-031610	90.6%	0
LCS-031610	90.2%	0
SB-20-5	76.2%	0
SB-20-5 MS	77.9%	0
SB-20-5 MSD	80.9%	0
SB-20-16	89.5%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(63-115)	(49-120)

Prep Method: SW3546
Log Number Range: 10-6197 to 10-6216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: SB-20-5**
Page 1 of 1 **MS/MSD**

Lab Sample ID: QN53S
LIMS ID: 10-6215
Matrix: Soil
Data Release Authorized:
Reported: 03/23/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Date Extracted MS/MSD: 03/16/10

Date Analyzed MS: 03/18/10 01:41
MSD: 03/18/10 02:08
Instrument/Analyst MS: FID/MS
MSD: FID/MS

Sample Amount MS: 8.46 g-dry-wt
MSD: 7.81 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.0
MSD: 1.0
Percent Moisture: 22.9%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 6.4	111	177	62.7%	125	192	65.1%	11.9%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	77.9%	80.9%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

FORM III

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-031610**
Page 1 of 1 **LAB CONTROL**

Lab Sample ID: LCS-031610
LIMS ID: 10-6215
Matrix: Soil
Data Release Authorized:
Reported: 03/23/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Date Extracted: 03/16/10
Date Analyzed: 03/18/10 04:23
Instrument/Analyst: FID/MS

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	117	150	78.0%

TPHD Surrogate Recovery

o-Terphenyl	90.2%

Results reported in mg/kg

4

TPH METHOD BLANK SUMMARY

BLANK NO.

QN53MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QN53 Project No.: BLAINE

Date Extracted: 03/16/10 Matrix: SOLID

Date Analyzed : 03/18/10 Instrument ID : FID4A

Time Analyzed : 0450

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	SB-15B-5	QN53B	03/17/10
02	SB-15B-16	QN53C	03/17/10
03	MW-3-3	QN53E	03/17/10
04	SB-18-10	QN53F	03/17/10
05	MW-4-3	QN53G	03/17/10
06	SB-18-19	QN53H	03/17/10
07	MW-3-5	QN53I	03/17/10
08	SB-16-3	QN53J	03/17/10
09	MW-3-17	QN53K	03/17/10
10	SB-18-5	QN53D	03/17/10
11	SB-17-5	QN53L	03/17/10
12	SB-19-5	QN53M	03/17/10
13	MW-4-16	QN53N	03/17/10
14	SB-19-16	QN53Q	03/18/10
15	SB-21-5	QN53R	03/18/10
16	SB-20-5	QN53S	03/18/10
17	SB-20-5 MS	QN53SMS	03/18/10
18	SB-20-5 MSD	QN53SMSD	03/18/10
19	SB-20-16	QN53T	03/18/10
20	QN53LCSS1	QN53LCSS1	03/18/10
21	SB-15B-1	QN53A	03/18/10
22	MW-5-5	QN53O	03/18/10
23	SB-19-10	QN53P	03/18/10

FORM IV TPH

TPHG ANALYSIS

QN53 : 00075

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/09/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-031910	Method Blank	03/19/10	Dry	Gasoline	< 5.0 U
10-6197		PID3		HC ID	---
				Trifluorotoluene	85.9%
				Bromobenzene	88.3%
QN53A	SB-15B-1	03/19/10	Dry	**Gasoline**	**76**
10-6197		PID3		HC ID	GAS/GRO
				Trifluorotoluene	104%
				Bromobenzene	101%
QN53B	SB-15B-5	03/19/10	Dry	Gasoline	< 8.3 U
10-6198		PID3		HC ID	---
				Trifluorotoluene	105%
				Bromobenzene	99.7%
QN53C	SB-15B-16	03/19/10	Dry	Gasoline	< 6.6 U
10-6199		PID3		HC ID	---
				Trifluorotoluene	104%
				Bromobenzene	99.4%
QN53D	SB-18-5	03/19/10	Dry	**Gasoline**	**52000**
10-6200		PID3		HC ID	GAS
				Trifluorotoluene	143%
				Bromobenzene	111%
QN53E	MW-3-3	03/19/10	Dry	**Gasoline**	**92**
10-6201		PID3		HC ID	GAS
				Trifluorotoluene	101%
				Bromobenzene	97.3%
MB-032010	Method Blank	03/20/10	Dry	Gasoline	< 5.0 U
10-6202		PID3		HC ID	---
				Trifluorotoluene	95.0%
				Bromobenzene	96.8%
QN53F	SB-18-10	03/20/10	Dry	**Gasoline**	**97**
10-6202		PID3		HC ID	GAS
				Trifluorotoluene	112%
				Bromobenzene	107%
QN53G	MW-4-3	03/19/10	Dry	**Gasoline**	**670**
10-6203		PID3		HC ID	GAS
				Trifluorotoluene	106%
				Bromobenzene	105%
QN53H	SB-18-19	03/19/10	Dry	**Gasoline**	**86**
10-6204		PID3		HC ID	GAS
				Trifluorotoluene	108%
				Bromobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/10/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
QN53I 10-6205	MW-3-5	03/19/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 8.9 U --- 104% 102%
QN53J 10-6206	SB-16-3	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**26** GAS 100% 95.5%
QN53K 10-6207	MW-3-17	03/19/10 PID3	Dry	Gasoline HC ID Trifluorotoluene Bromobenzene	< 5.0 U --- 102% 100%
QN53L 10-6208	SB-17-5	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**1200** GAS 111% 88.8%
QN53M 10-6209	SB-19-5	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**220** GAS 98.7% 101%
QN53N 10-6210	MW-4-16	03/20/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**12** GAS 107% 103%
QN53O 10-6211	MW-5-5	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**5.8** GAS 108% 106%
QN53P 10-6212	SB-19-10	03/20/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**1000** GAS 114% 111%
QN53Q 10-6213	SB-19-16	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**67** GAS 110% 107%
QN53R 10-6214	SB-21-5	03/19/10 PID3	Dry	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**100** GAS/GRO 102% 104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/10/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
QN53S	SB-20-5	03/19/10	Dry	**Gasoline**	**60**
10-6215		PID3		HC ID	GAS/GRO
				Trifluorotoluene	104%
				Bromobenzene	102%
QN53T	SB-20-16	03/19/10	Dry	Gasoline	< 6.8 U
10-6216		PID3		HC ID	---
				Trifluorotoluene	105%
				Bromobenzene	104%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: QN53
Matrix: Soil

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	BFB	TFT	BBZ	TOT OUT
MB-031910	NA	85.9%	88.3%	0
LCS-031910	NA	90.7%	89.5%	0
LCSD-031910	NA	90.6%	91.2%	0
SB-15B-1	NA	104%	101%	0
SB-15B-5	NA	105%	99.7%	0
SB-15B-16	NA	104%	99.4%	0
SB-18-5	NA	143%*	111%	1
MW-3-3	NA	101%	97.3%	0
MB-032010	NA	95.0%	96.8%	0
LCS-032010	NA	104%	99.9%	0
LCSD-032010	NA	96.5%	94.7%	0
SB-18-10	NA	112%	107%	0
MW-4-3	NA	106%	105%	0
SB-18-19	NA	108%	103%	0
MW-3-5	NA	104%	102%	0
SB-16-3	NA	100%	95.5%	0
SB-16-3 MS	NA	107%	102%	0
SB-16-3 MSD	NA	107%	103%	0
MW-3-17	NA	102%	100%	0
SB-17-5	NA	111%	88.8%	0
SB-19-5	NA	98.7%	101%	0
MW-4-16	NA	107%	103%	0
MW-5-5	NA	108%	106%	0
SB-19-10	NA	114%	111%	0
SB-19-16	NA	110%	107%	0
SB-21-5	NA	102%	104%	0
SB-20-5	NA	104%	102%	0
SB-20-16	NA	105%	104%	0

	LCS/MB LIMITS	QC LIMITS
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(TFT) = Trifluorotoluene	(80-120)	(66-123)
(BBZ) = Bromobenzene	(80-120)	(62-130)

Log Number Range: 10-6197 to 10-6216

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: SB-16-3
MATRIX SPIKE

Lab Sample ID: QN53J
LIMS ID: 10-6206
Matrix: Soil
Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Date Analyzed MS: 03/19/10 13:26
MSD: 03/19/10 13:51
Instrument/Analyst MS: PID3/MH
MSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount MS: 41.6 mg-dry-wt
MSD: 41.6 mg-dry-wt

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	26.4	140	120	94.7%	145	120	98.8%	3.5%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	107%	107%
Bromobenzene	102%	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-031910
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031910
LIMS ID: 10-6197
Matrix: Soil
Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/19/10 05:58
LCSD: 03/19/10 06:23
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	47.2	50.0	94.4%	46.0	50.0	92.0%	2.6%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	90.7%	90.6%
Bromobenzene	89.5%	91.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032010
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032010
LIMS ID: 10-6202
Matrix: Soil
Data Release Authorized:
Reported: 03/24/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/20/10 06:30
LCSD: 03/20/10 06:55
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	50.6	50.0	101%	51.2	50.0	102%	1.2%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	104%	96.5%
Bromobenzene	99.9%	94.7%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO. MB0319S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN53 Project No.: BLAINE

Date Analyzed : 03/19/10 Matrix: WATER

Time Analyzed : 0647 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0319S1	LCS0319	03/19/10
02	LCSD0319S1	LCSD0319	03/19/10
03	SB-15B-1	QN53A	03/19/10
04	SB-15B-5	QN53B	03/19/10
05	SB-15B-16	QN53C	03/19/10
06	SB-18-5	QN53D	03/19/10
07	MW-3-3	QN53E	03/19/10
08	MW-4-3	QN53G	03/19/10
09	SB-18-19	QN53H	03/19/10
10	MW-3-5	QN53I	03/19/10
11	SB-16-3	QN53J	03/19/10
12	SB-16-3	QN53JMS	03/19/10
13	SB-16-3	QN53JMSD	03/19/10
14	MW-3-17	QN53K	03/19/10
15	SB-17-5	QN53L	03/19/10
16	SB-19-5	QN53M	03/19/10
17	MW-5-5	QN53O	03/19/10
18	SB-19-16	QN53Q	03/19/10
19	SB-21-5	QN53R	03/19/10
20	SB-20-5	QN53S	03/19/10
21	SB-20-16	QN53T	03/19/10
22			
23			
24			
25			
26			
27			
28			
29			
30			

QN53 : 080851

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB0320S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN53 Project No.: BLAINE

Date Analyzed : 03/20/10 Matrix: SOIL

Time Analyzed : 0719 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0320S1	LCS0320	03/20/10
02	LCSD0320S1	LCSD0320	03/20/10
03	SB-18-10	QN53F	03/20/10
04	MW-4-16	QN53N	03/20/10
05	SB-19-10	QN53P	03/20/10
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

QN53 : 000825

METALS ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-18-5
SAMPLE

Lab Sample ID: QN53D
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 82.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	**7439-92-1**	**Lead**	2	**8**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-16-3
SAMPLE

Lab Sample ID: QN53J
LIMS ID: 10-6206
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 81.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	7439-92-1	Lead	6	6	U

U-Analyte undetected at given RL
RL-Reporting Limit

QN53 : 000033

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: MW-3-17
SAMPLE

Lab Sample ID: QN53K
LIMS ID: 10-6207
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 91.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	7439-92-1	Lead	2	2	U

U-Analyte undetected at given RL
RL-Reporting Limit

QN53 : 000530

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: MW-5-5
SAMPLE

Lab Sample ID: QN53O
LIMS ID: 10-6211
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 80.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	**7439-92-1**	**Lead**	2	**3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-19-10
SAMPLE

Lab Sample ID: QN53P
LIMS ID: 10-6212
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 74.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	7439-92-1	Lead	6	6	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-21-5
SAMPLE

Lab Sample ID: QN53R
LIMS ID: 10-6214
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 72.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	**7439-92-1**	**Lead**	6	7	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-20-5
SAMPLE

Lab Sample ID: QN53S
LIMS ID: 10-6215
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 73.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	**7439-92-1**	**Lead**	7	**7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-18-5
MATRIX SPIKE

Lab Sample ID: QN53D
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	8	244	240	98.3%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-18-5
DUPLICATE

Lab Sample ID: QN53D
LIMS ID: 10-6200
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	8	8	0.0%	+/- 2	L

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

QN53 : 188714

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: QN53LCS
LIMS ID: 10-6206
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	189	200	94.5%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: QN53MB
LIMS ID: 10-6206
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN53-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	7439-92-1	Lead	2	2	U

U-Analyte undetected at given RL
RL-Reporting Limit

QN53 : 00057

TOTAL SOLIDS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/23/10

Worklist: 203
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. QN53A 10-6197				$ 92.30
2. QN53B 10-6198				$ 74.30
3. QN53C 10-6199				$ 72.40
4. QN53D 10-6200				$ 86.90
5. QN53E 10-6201				$ 72.20
6. QN53F 10-6202				$ 77.00
7. QN53G 10-6203				$ 75.40
8. QN53H 10-6204				$ 91.30
9. QN53I 10-6205				$ 76.40
10. QN53J 10-6206				$ 68.80
11. QN53K 10-6207				$ 91.10
12. QN53L 10-6208				$ 73.20
13. QN53M 10-6209				$ 75.70
14. QN53N 10-6210				$ 68.30
15. QN53O 10-6211				$ 92.80

Worklist ID: 203 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/23/10

Worklist: 203
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
16. QN53P 10-6212	_____	_____		$ 77.00
17. QN53Q 10-6213	_____	_____		$ 78.80
18. QN53R 10-6214	_____	_____		$ 73.80
19. QN53S 10-6215	_____	_____		$ 77.10
20. QN53T 10-6216	_____	_____		$ 91.40

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

QN53 : 091 00

Extractions Total Solids-extts
Data By: Pat Dugan
Created: 3/16/10

Worklist: 7870
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QN53A 10-6197 SB-15B-1	1.15	11.80	10.98	92.3	NR
2.	QN53B 10-6198 SB-15B-5	1.11	11.54	8.86	74.3	NR
3.	QN53C 10-6199 SB-15B-16	1.12	11.61	8.71	72.4	NR
4.	QN53D 10-6200 SB-18-5	1.13	11.67	10.29	86.9	NR
5.	QN53E 10-6201 MW-3-3	1.12	11.17	8.38	72.2	NR
6.	QN53F 10-6202 SB-18-10	1.12	11.63	9.21	77.0	NR
7.	QN53G 10-6203 MW-4-3	1.11	11.53	8.97	75.4	NR
8.	QN53H 10-6204 SB-18-19	1.13	12.35	11.37	91.3	NR
9.	QN53I 10-6205 MW-3-5	1.11	11.32	8.91	76.4	NR
10.	QN53J 10-6206 SB-16-3	1.14	11.70	8.41	68.8	NR
11.	QN53K 10-6207 MW-3-17	1.10	11.79	10.84	91.1	NR
12.	QN53L 10-6208 SB-17-5	1.11	12.12	9.17	73.2	NR
13.	QN53M 10-6209 SB-19-5	1.12	12.10	9.43	75.7	NR

Extractions Total Solids-extts
Data By: Pat Dugan
Created: 3/16/10

Worklist: 7870
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	QN53N 10-6210 MW-4-16	1.12	12.03	8.57	68.3	NR
15.	QN53O 10-6211 MW-5-5	1.14	14.11	13.18	92.8	NR
16.	QN53P 10-6212 SB-19-10	1.11	11.18	8.86	77.0	NR
17.	QN53Q 10-6213 SB-19-16	1.12	11.40	9.22	78.8	NR
18.	QN53R 10-6214 SB-21-5	1.15	16.14	12.22	73.8	NR
19.	QN53S 10-6215 SB-20-5	1.13	12.02	9.53	77.1	NR
20.	QN53T 10-6216 SB-20-16	1.12	11.76	10.85	91.4	NR

Solids Data Entry Report Checked by: MH Date: 3/19/10
Date: 03/19/10 Data Analyst: KM

Solids Determination performed on 03/18/10 by KM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
QN53	D	SB-18-5	0.970	10.779	9.018	82.05
QN53	J	SB-16-3	0.942	10.257	8.551	81.69
QN53	K	MW-3-17	0.980	10.690	9.831	91.15
QN53	O	MW-5-5	0.973	10.063	8.242	79.97
QN53	P	SB-19-10	0.982	10.339	7.919	74.14
QN53	R	SB-21-5	0.987	10.295	7.748	72.64
QN53	S	SB-20-5	0.984	10.183	7.743	73.48

QN53 : 001103

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 30, 2010

Glen Vedera
SAIC
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

RE: Project: Blaine, 188714
ARI Job No: QN55

Dear Glen:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of the analyses are discussed in the Case Narrative.

An electronic copy of this data and associated raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.



Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com

Enclosures

cc: eFile QN55

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody
Documentation

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN55

prepared
by

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard
ARI Client Company: SAIC	Phone: 206 271 4691
Client Contact: Glen Vedera	
Client Project Name: Blaine	
Client Project #: 1887.14	Samplers: AW/ACL JW

Page: 3 of

Date: 3/10/10 | Ice Present?

No. of Coolers: | Cooler Temps:

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX+MTBE 8260C	NWTPH-Dx	NWTPH-Dx w/Silica gel	PCB 8082	VOC/TPH/TS 8260C	Lead 6010B			Notes/Comments
SB-22-5	3/10/10	1530	Soil	8	X	X	X		X	X			
SB-17-16	3/10/10	1550	Soil	7	X	X	X		X				
SB-21-5	3/10/10	1700	Soil	7	X	X	X		X				
SB-21-16	3/10/10	0845	Soil	7	X	X	X		X				
SB-16-7	3/10/10	0915	Soil	7	X	X	X		X				
SB-16-16	3/10/10	0930	Soil	7	X	X	X		X				
SB-23-4	3/10/10	0950	Soil	8	X	X	X		X	X			
SB-23-8	3/10/10	1010	Soil	7	X	X	X		X				
SB-23-16	3/10/10	1020	Soil	7	X	X	X		X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Jamie Walker	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/11/10 1630	Date & Time: 3/11/10 1630	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work order or contract.

ONS:SSG:0003

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 1 of	
ARI Client Company: SAIC	Phone: 206 271 4691	Date: 3/11/10	Ice Present?
Client Contact: Glen Vellum		No. of Coolers:	Cooler Temps:
Client Project Name: Bkim			
Client Project #: 188714	Samplers: AW/AL /JW		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEXtMTBE	Analysis Requested: 8260C NWTPH-Gx	Analysis Requested: NWTPH-Dx w/Silica gel	Analysis Requested: PCB 8082	Analysis Requested: VOA PAHs 8260C	Analysis Requested: VOA 6010B	Analysis Requested: LL SIM cPAH (0.01 ug/L)	Analysis Requested: BTEXtMTBE EDB, EDC	Notes/Comments
SB-22-B	3/11/10	1100	Soil	8	X	X	X		X	X			
SB-22-15	3/11/10	1120	Soil	8	X	X	X		X	X			
TB-2-031110	3/11/10	0900	WATER	2	X	X			X				
ER-031110-1	3/11/10	0800	WATER	10		X	X			X	X	X	
MW-5-16	3/10/10	1700	Soil	7	X	X	X		X				

3/11/10

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Warren	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/11/10 1630	Date & Time: 3/11/10 1630	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

SAIC 00051

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SAIC Project Name: Blaine

COC No(s): _____ NA Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: QN55 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	2.7 4.2 2.6	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: _____ Date: 3/11/10 Time: 1735

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		(YES)	NO
What kind of packing material was used? ...	Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)	_____	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: MM Date: 3/12/10 Time: 1101

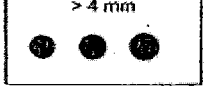
***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Sample SB-21-S ~~was~~ was listed on COCs twice. Sample associated w/ QN53 since times on jars matched for that COC.

By: DO Date: 3/15/10

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

PRESERVATION VERIFICATION 03/12/10
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **QN55**

PC: Cheronne
VTSR: 03/11/10

Inquiry Number: NONE
Analysis Requested: 03/12/10
Contact: Verdera, Glen
Client: Science App. International Corp
Logged by: MM
Sample Set Used: Yes-490
Validatable Package: ~~No~~ YES
Deliverables:

Project #: 188714
Project: Blaine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
10-6232 **QN55L**	ER-031110-1						TOT pass															

QN55 00005

Checked By MM Date 3/12/10

Case Narrative

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN55

prepared
by

Analytical Resources, Inc.

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: SAIC
Project: Blaine, 188714
ARI Job No.: QN55

Sample Receipt

Eleven soil samples, one water sample, and a trip blank were received on March 11, 2010, under ARI job QN55. The cooler temperatures measured by IR thermometer following ARI SOP were 2.6, 2.7, and 4.2°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile by SW8260C

The samples and associated laboratory QC were analyzed within the recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS and LCSD percent recoveries of Methyl tert-Butyl Ether were outside the control limits high for **LCS-031710**. All associated samples were undetected for this compound. No corrective action was required. All other LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

SIM PAHs by SW8270D

The sample was extracted and analyzed within the recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit.

The LCS percent recovery of Chrysene fell outside the control limits low for **LCS-031610**. All other LCS and LCSD percent recoveries were within control limits. No corrective action was required.

TPH-Gx by NWTPH

The samples and associated laboratory QC were analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Acid/Silica Cleaned TPH-Dx by NWTPH

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Total Metals by SW6010B

The samples and associated laboratory QC were digested and analyzed within method recommended holding times, using internal standards.

The method blanks were clean at the reporting limits. The LCS percent recoveries were within control limits.

The matrix spike percent recoveries and duplicate RPDs were within control limits.

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

QN55 : 00010

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

QN55 : 00011

SURR SOLUTIONS

3/6/2010

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1662-3	ABN	100/150	MEOH	10/08/10
B	1633-3	SIM PNA	15/75	MEOH	08/12/10
C*	1559-1	SIM ABN	25/37.5	MEOH	03/13/10
D	1689-2	LOW PCB	0.2	ACETONE	12/29/10
E	1661-2	HERB	62.5	MEOH	10/02/10
F	1683-3	PCP	12.5	ACETONE	12/09/10
G*	1534-1	1,4DIOXANE	100	MEOH	02/20/10
H	1594-1	OP-PEST	25	MEOH	04/01/10
I	1634-1	LOW S. PNA	1.5	MEOH	08/12/10
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1682-1	EPH	1500	MECL2	09/17/10
N	1689-3	PCB	2	ACETONE	12/29/10
O	1699-1	TPH	450	MECL2	07/02/10
P	1666-3	HCID	2250	MECL2	05/06/10
Q	1620-2	EDB	1	MEOH	06/22/10
R	1615-1	RESIN ACID	250	ACETONE	06/17/10
S#	1568-5	PBDE	.25	MEOH	NA
T	1674-2	ALKYL PNA	10	MEOH	07/30/10
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					
#project specific					
Y					
Z					

QN55 : 00012

LCS SOLUTIONS

3/6/2010

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1686-1	PCB 1660	20	ACETONE	09/01/10
2#	1472-3	BCOC PEST	10	ACETONE	NA
3	1620-4	PEST	02/04/20	ACETONE	06/26/10
4	1667-1	LOW PEST	0.2/0.4/2	ACETONE	06/26/10
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1705-1	ABN	100	ACETONE	07/01/10
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1698-2	ABN ACID	100/200	MECL2	07/14/10
11	1642-2	TPHD	15000	ACETONE	09/07/10
12	1698-1	ABN BASE	200	MEOH	07/24/10
13	1613-1	LOW PCB	2	ACETONE	06/08/10
14*	1547-1	LOW ABN ACID	10/20	MEOH	04/10/10
15*	1591-3	SIM PNA	15/75	MEOH	08/28/10
16	1602-3	DIOXANE	100	MEOH	03/20/10
17	1644-1	1248 PCB	10	ACETONE	09/10/10
18*	1591-4	LOW SIM PNA	1.5	ACETONE	08/28/10
19	1685-3	AK103	7500	ACETONE	09/03/10
20	1682-4	PNA	100	ACETONE	12/04/10
21	1593-3	SKY/BHT	100	MEOH	03/31/10
22	1702-4	HERB	12.5/12500	MEOH	04/17/10
23*	1505-1	LW ABN BASE	20	MEOH	03/20/10
24	1696-1	LOW ABN	10	ACETONE	01/13/11
25#	1481-1	DIPHENYL	100	MEOH	NA
26	1702-5	OP-PEST	25	MEOH	03/31/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1684-1	ADD. PEST	4	ACETONE	03/25/10
29#	1496-3	DECANES	100	MEOH	NA
30	1620-1	EDB/DBCP	0.2	MEOH	06/22/10

QN55 : 00013

LCS SOLUTIONS

3/6/2010

31	1596-1	TERPINEOL	100	MEOH	04/03/10
32	1619-3	GUAIACOL	50-200	ACETONE	04/30/10
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
50	1617-1	FULL RESIN	250	ACETONE	06/17/10
51	1696-3	DDTS	2.5	ACETONE	06/03/10
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1701-2	PBDE	0.5	ACETONE	02/10/11
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

QN55 : 00014

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 10 mL Purge Volume [1,7]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI Control Limits	ARI ME Control Limits[2]
LCS Spike Recovery [6]		
tert-Butanol	49 - 150	32 - 167
Metyl-*tert*-butylether	47 - 154	29 - 172
Di-*iso*-propylether	43 - 149	25 - 167
Ethyl-*tert*-butylether	45 - 155	27 - 173
tert-Amyl methylether	52 - 151	35 - 168
Dichlorodifluoromethane	59 - 129	47 - 141
Chloromethane	66 - 123	57 - 133
Vinyl Chloride	68 - 121	59 - 130
Bromomethane	55 - 148	40 - 164
Chloroethane	47 - 155	29 - 173
1,1,2-Trichloro-1,2,2-trifluoroethane	70 - 129	60 - 139
Acrolein	24 170	**10** - 194
Trichlorotrifluoroethane	74 - 127	65 - 136
Acetone	70 - 130	60 - 140
1,1-Dichloroethene	72 - **120**	64 - 127
Bromoethane	73 - 131	63 - 141
Methyl Iodide	34 - 183	**10** - 208
Methylene Chloride	70 - 124	61 - 133
Acrylonitrile	71 - 135	60 - 146
Methyl tert-Butyl Ether	78 - **120**	72 - 122
Carbon Disulfide	66 - 129	56 - 140
trans-1,2-Dichloroethene	76 - **120**	70 - 120
Vinyl Acetate	49 - 134	35 - 148
1,1-Dichloroethane	75 - **120**	68 - 124
2-Butanone	78 - 131	69 - 140
2,2-Dichloropropane	68 - 121	59 - 130
cis-1,2-Dichloroethene	80 - **120**	75 - **120**
Chloroform	78 - **120**	72 - 121
Bromodichloromethane	79 - **120**	73 - **120**
1,1,1-Trichloroethane	76 - **120**	69 - 123
1,1-Dichloropropene	78 - **120**	72 - 120
Carbon Tetrachloride	70 - 126	61 - 135
1,2-Dichloroethane	78 - **120**	72 - **120**
Benzene	79 - **120**	73 - **120**
Trichloroethene	78 - **120**	72 - 122
1,2-Dichloropropane	80 - **120**	75 - **120**
Bromochloromethane	78 - **120**	72 - 124

QN55 : 00015

Dibromomethane	80 - **120**	75 - **120**
2-Chloroethylvinylether	68 - 134	57 - 145
4-Methyl-2-Pentanone	73 - 131	63 - 141
cis-1,3-Dichloropropene	78 - **120**	72 - 121
Toluene	79 - **120**	74 - **120**
trans-1,3-Dichloropropene	75 - **120**	68 - 124
2-Hexanone	75 - 130	66 - 139
1,1,2-Trichloroethane	79 - **120**	74 - **120**
1,3-Dichloropropane	78 - **120**	72 - 120
Tetrachloroethene	72 - **120**	65 - 125
Dibromochloromethane	78 - **120**	71 - 125
Ethylene Dibromide	75 - **120**	68 - 125
Chlorobenzene	79 - **120**	73 - **120**
Ethylbenzene	78 - 121	71 - 128
1,1,2,2-Tetrachloroethane	72 - **120**	64 - 127
m,p-Xylene	65 - 129	54 - 140
o-Xylene	76 - 120	69 - 127
Styrene	74 - 121	66 - 129
Isopropylbenzene	74 - 120	66 - 128
Bromoform	71 - 120	63 - 128
1,1,1,2-Tetrachloroethane	75 - **120**	68 - 126
1,2,3-Trichloropropane	73 - 120	65 - 128
trans-1,4-Dichloro-2-butene	65 - 135	53 - 147
n-Propylbenzene	76 - 121	69 - 129
Bromobenzene	72 - **120**	64 - 126
1,3,5-Trimethylbenzene	74 - 123	66 - 131
2-Chlorotoluene	74 - **120**	67 - 127
4-Chlorotoluene	75 - **120**	68 - 125
tert-Butylbenzene	73 - 121	65 - 129
1,2,4-Trimethylbenzene	73 - 124	65 - 133
sec-Butylbenzene	75 - 123	67 - 131
4-Isopropyltoluene	71 - 125	62 - 134
1,3-Dichlorobenzene	72 - **120**	64 - 127
1,4-Dichlorobenzene	76 - **120**	69 - 123
n-Butylbenzene	72 - 124	63 - 133
1,2-Dichlorobenzene	75 - **120**	68 - 124
1,2-Dibromo-3-chloropropane	67 - 121	58 - 130
1,2,4-Trichlorobenzene	71 - 120	63 - 128
Hexachloro-1,3-butadiene	67 - 124	58 - 134
Naphthalene	71 - 125	62 - 134
1,2,3-Trichlorobenzene	61 - 134	49 - 146
MB/LCS Surrogate Recovery		
Dibromofluoromethane	64 - 133	(3)
d4-1,2-Dichloroethane	70 - 132	(3)
d8-Toluene	**80** - **120**	(3)

QN55 : 00016

4-Bromofluorobenzene	**80 - 120**	(3)
d4-1,2-Dichlorobenzene	**80 - 120**	(3)
Sample Surrogate Recovery		
Dibromofluoromethane	30 - 160 [5]	(3)
d4-1,2-Dichloroethane	**80** - 143	(3)
d8-Toluene	**80 - 120**	(3)
4-Bromofluorobenzene	**80 - 120**	(3)
D4-1,2-Dichlorobenzene	**80** - 120	(3)

(1) Control Limits calculated using all data generated 1/1/08 through 4/15/09.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard[4] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(3) Marginal Exceedances not allowed for surrogate standards.
(4) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(5) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(6) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

QN55 : 00017

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

QN55 : 00018

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

QN55 : 00019

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

QN55 : 00020

Analytical Resources,Incorporated
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Spike Recovery Control Limits for Polycyclic Aromatic Hydrocarbons Selected Ion Monitoring (SIM) EPA Method SW-846-8270D-Modified Low Level Aqueous Samples[1,7]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Volume / Final Volume	500 mL to 0.5 mL	
	Control Limits	ME Limits [2]
LCS Spike Recovery [6]		
Napthalene	41 - 101	31 - 111
2-Methylnapthalene	47 - **100**	39 - 103
1-Methylnapthalene	30 - 160 [3]	30 - 160 [3]
Acenaphthylene	35 - **100**	25 - 104
Acenapthene	43 - 104	33 - 114
Dibenzofuran	37 - **100**	27 - 108
Fluorene	51 - 103	42 - 112
Phenanthrene	55 - 109	46 - 118
Anthracene	30 - 101	18 - 113
Fluoranthene	49 - 123	37 - 135
Pyrene	48 - 120	36 - 132
Benz(a)anthracene	43 - 113	31 - 125
Chrysene	59 - 112	50 - 121
Benzo(b)fluoranthene	44 - 121	31 - 134
Benzo(k)fluoranthene	50 - 117	39 - 128
Benzo(a)pyrene	**10** - **100**	**10** - 109
Indeno(1,2,3-cd)pyrene	43 - 112	32 - 124
Dibenzo(a,h)anthracene	42 - 114	30 - 126
Benzo(g,h,i)perylene	31 - 118	17 - 133
MB / LCS Surrogate Recovery		
d10-2-Methylnaphthalene	42 - **100**	(4)
d14-Dibenzo(a,h)anthracene	40 - 125	(4)
Sample Surrogate Recovery		
d10-2-Methylnaphthalene	31 - 109	(4)
d14-Dibenzo(a,h)anthracene	**10** - 133	(4)

(1) ARI's Control limits calculated using all available spike recovery data from 1/1/08 through 12/1/08.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of one marginal exceedance is acceptable. Two or more marginal exceedances require corrective action.
(3) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(4) Marginal Exceedances not allowed for surrogate standards.
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6)Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(7) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.

GN55 : 00021

Analytical Resources,Incorporated
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Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	Aqueous Samples		Soil / Sediment Samples	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

ON55 : 00022

Analytical Resources,Incorporated
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Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water	Soil	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [3]				
Diesel	-- - --	56 - 103	55 - 104	75 - 125
Diesel with Acid & Silica Clean-up	-- - --	43 - 100	54 - 96	(4)
Diesel with Silica Clean-up	-- --	43 - 100	54 - 96	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-- - --	57 - 120	58 - 121	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-- - --	51 - 120	63 - 115	(4)
o-Terphenyl Silica Clean-up		51 - 120	63 - 115	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	35 - 131	53 - 118	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-- - --	41 - 121	49 - 120	(4)
o-Terphenyl with Silica Clean-up		41 - 121	49 - 120	50 - 150

1. Control Limits calculated using all data generated 1/1/08 through 12/31/08
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
4. Alaska State UST Methods do not allow acid cleanup of sample extracts.

QN55 : 00023

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

GN55 : 00024

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	10.0 mL	
Spike Level*	0.4 µg/L [1]	
Preparation Method	5030B	Water
Instrument	NT3, NT5, NT10	Reporting
Date Analyzed	2/23/09	Limit
ARI Data File	OI99	10 mL Purge Volume
Reporting Units	µg/L	µg/L (ppb)
Analyte	**MDL[3]**	**RL**
Chloromethane	0.096	**1.0**
Vinyl Chloride	0.067	**0.2**
Bromomethane	0.094	**1.0**
Chloroethane	0.055	**0.2**
Trichlorofluoromethane	0.056	**0.2**
Acrolein	3.578	**5.0**
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.083	**0.2**
Acetone	0.622	**5.0**
1,1-Dichloroethene	0.075	**0.2**
Bromoethane	0.098	**0.2**
Iodomethane	0.141	**1.0**
Methylene Chloride	0.112	**0.5**
Acrylonitrile	0.223	**1.0**
Carbon Disulfide	0.071	**0.2**
Trans-1,2-Dichloroethene	0.063	**0.2**
Vinyl Acetate	0.089	**1.0**
1,1-Dichloroethane	0.072	**0.2**
2-Butanone	1.152	**5.0**
2,2-Dichloropropane	0.085	**0.2**
Cis-1,2-Dichloroethene	0.054	**0.2**
Chloroform	0.048	**0.2**
Bromochloromethane	0.195	**0.2**
1,1,1-Trichloroethane	0.057	**0.2**
1,1-Dichloropropene	0.061	**0.2**
Carbon Tetrachloride	0.089	**0.2**
1,2-Dichloroethane	0.051	**0.2**
Benzene	0.043	**0.2**
Trichloroethene	0.088	**0.2**
1,2-Dichloropropane	0.040	**0.2**
Bromodichloromethane	0.035	**0.2**
Dibromomethane	0.081	**0.2**
2-Chloroethyl Vinyl Ether	0.135	**1.0**

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	10.0 mL	
Spike Level*	0.4 µg/L [1]	
Preparation Method	5030B	Water
Instrument	NT3, NT5, NT10	Reporting
Date Analyzed	2/23/09	Limit
ARI Data File	OI99	10 mL Purge Volume
Reporting Units	µg/L	µg/L (ppb)
Analyte	**MDL[3]**	**RL**
4-Methyl-2-Pentanone	0.199	**5.0**
Cis 1,3-dichloropropene	0.046	**0.2**
Toluene	0.041	**0.2**
Trans 1,3-Dichloropropene	0.043	**0.2**
2-Hexanone	0.481	**5.0**
1,1,2-Trichloroethane	0.055	**0.2**
1,3-Dichloropropane	0.036	**0.2**
Tetrachloroethene	0.056	**0.2**
Chlorodibromomethane	0.047	**0.2**
1,2-Dibromoethane	0.074	**0.2**
Chlorobenzene	0.032	**0.2**
Ethyl Benzene	0.054	**0.2**
1,1,1,2-Tetrachloroethane	0.045	**0.2**
m,p-xylene	0.062	**0.4**
o-Xylene	0.043	**0.2**
Styrene	0.030	**0.2**
Bromoform	0.062	**0.2**
1,1,2,2-Tetrachloroethane	0.082	**0.2**
1,2,3-Trichloropropane	0.110	**0.5**
Trans-1,4-Dichloro 2-Butene	0.221	**1.0**
N-Propyl Benzene	0.045	**0.2**
Bromobenzene	0.069	**0.2**
Isopropyl Benzene	0.050	**0.2**
2-Chloro Toluene	0.050	**0.2**
4-Chloro Toluene	0.044	**0.2**
tert-Butyl Benzene	0.043	**0.2**
1,3,5-Trimethyl Benzene	0.042	**0.2**
1,2,4-Trimethylbenzene	0.040	**0.2**
S-Butyl Benzene	0.040	**0.2**
4-Isopropyl Toluene	0.053	**0.2**
1,3-Dichlorobenzene	0.043	**0.2**
1,4-Dichlorobenzene	0.051	**0.2**
N-Butyl Benzene	0.065	**0.2**

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	**10.0 mL**	
Spike Level*	**0.4 µg/L** [1]	
Preparation Method	**5030B**	**Water**
Instrument	**NT3, NT5, NT10**	**Reporting**
Date Analyzed	**2/23/09**	**Limit**
ARI Data File	**OI99**	**10 mL Purge Volume**
Reporting Units	**µg/L**	**µg/L (ppb)**
Analyte	**MDL**[3]	**RL**
1,2-Dichlorobenzene	0.051	**0.2**
1,2-Dibromo 3-Chloropropane	0.137	**0.5**
1,2,4-Trichlorobenzene	0.111	**0.5**
Hexachloro 1,3-Butadiene	0.076	**0.5**
Naphthalene	0.127	**0.5**
1,2,3-Trichlorobenzene	0.101	**0.5**
Dichlorodifluoromethane	0.077	**0.2**
Methyl-*tert*-butyl ether	0.049	**0.5**
Ethanol [2]	53.1	**200**
tert-Butanol [2]	2.71	**2.5**
Diisopropyl ether [2]	0.033	**0.5**
Ethyl-*tert*-butyl ether [2]	0.086	**0.5**
tert-Amyl methyl ether [2]	0.099	**0.5**

(1) The ketones are spiked at 2.0 ppb and m/p-xylene at .8 ppb.
(2) Oxygenates MDL study (ME90) performed 4/1/08
(3) MDL performed on 3 instruments (NT3, NT5, NT10) with the highed calculated MDL listed
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL for all analytes, incluing those without a calculated MDL, are based on the lowest concentration used to calibrate the analytical instrument unless otherwise noted.

ARI Data File	Date	Instrument	Spike Level	Average Recovery
MD52	12/27/07	NT-5	0.1 µg/L	106%
MD52	1/18/08	NT-7	0.1 µg/L	83.0%
ME90	4/1/08	Finn3	1.0 µg/L	105%
OI99	2/23/09	NT3, NT5, NT10	0.1 µg/L	193%

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
Dichlorodifluoromethane	0.363	**1.0**
Chloromethane	0.094	**1.0**
Vinyl Chloride	0.157	**1.0**
Bromomethane	0.400	**1.0**
Chloroethane	0.436	**1.0**
Trichlorofluoromethane	0.384	**1.0**
Acrolein*	1.104	**50.0**
Acetone*	2.221	**5.0**
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.383	**2.0**
1,1-Dichloroethene	0.184	**1.0**
Bromoethane	0.516	**2.0**
Iodomethane	0.304	**1.0**
Methylene Chloride	0.706	**2.0**
Carbon Disulfide	0.352	**1.0**
Acrylonitrile	0.334	**5.0**
Methyl-t-butyl ether (MTBE)	0.166	**1.0**
trans-1,2-Dichloroethene	0.208	**1.0**
Vinyl Acetate	0.326	**5.0**
1,1-Dichloroethane	0.129	**1.0**
2-Butanone*	0.960	**5.0**
2,2-Dichloropropane	0.144	**1.0**
cis-1,2-Dichloroethene	0.110	**1.0**
Chloroform	0.347	**1.0**
Bromochloromethane	0.240	**1.0**
1,1,1-Trichloroethane	0.123	**1.0**
1,1-Dichloropropene	0.165	**1.0**
Carbon Tetrachloride	0.396	**1.0**
1,2-Dichloroethane	0.351	**1.0**

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
Benzene	0.218	**1.0**
Trichloroethene	0.510	**1.0**
1,2-Dichloropropane	0.357	**1.0**
Bromodichloromethane	0.481	**1.0**
Dibromomethane	0.265	**1.0**
2-Chloroethyl Vinyl Ether	0.453	**5.0**
4-Methyl-2-Pentanone*	0.952	**5.0**
cis-1,3-Dichloropropene	0.199	**1.0**
Toluene	0.225	**1.0**
trans-1,3-Dichloropropene	0.183	**1.0**
1,1,2-Trichloroethane	0.253	**1.0**
1,2-Dibromoethane	0.177	**1.0**
2-Hexanone*	0.823	**5.0**
1,3-Dichloropropane	0.125	**1.0**
Tetrachloroethene	0.400	**1.0**
Chlorodibromomethane	0.295	**1.0**
Chlorobenzene	0.098	**1.0**
1,1,1,2-Tetrachloroethane	0.170	**1.0**
Ethyl Benzene	0.087	**1.0**
m,p-Xylene	0.263	**1.0**
o-Xylene	0.205	**1.0**
Styrene	0.230	**1.0**
Bromoform	0.490	**1.0**
Isopropyl Benzene	0.173	**1.0**
1,1,2,2-Tetrachloroethane	0.218	**1.0**
1,2,3-Trichloropropane	0.483	**2.0**
trans-1,4-Dichloro-2-Butene	0.287	**5.0**
n-Propyl Benzene	0.144	**1.0**
Bromobenzene	0.166	**1.0**

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
1,3,5-Trimethylbenzene	0.164	**1.0**
2-Chlorotoluene	0.247	**1.0**
4-Chlorotoluene	0.066	**1.0**
t-Butylbenzene	0.115	**1.0**
1,2,4-Trimethylbenzene	0.114	**1.0**
s-Butylbenzene	0.179	**1.0**
4-Isopropyl Toluene	0.137	**1.0**
1,3-Dichlorobenzene	0.134	**1.0**
1,4-Dichlorobenzene	0.238	**1.0**
n-Butylbenzene	0.233	**1.0**
1,2-Dichlorobenzene	0.045	**1.0**
1,2-Dibromo-3-Chloropropane	0.600	**5.0**
1,2,4-Trichlorobenzene	0.270	**5.0**
Hexachloro-1,3-Butadiene	0.192	**5.0**
Naphthalene	0.097	**5.0**
1,2,3-Trichlorobenzene	0.179	**5.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.
* Compounds noted labeled with an * are spiked at higher concentrations.

MDL Verifications			
ARI Data File	**Date**	**Spike Level**	**Recovery**
OC17	12/5/08	0.5 µg/L	41 – 137 %

Analytical Resources,Incorporated
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MDL and RL Summary GC - MS - SIM Analysis of PNA in Water
EPA Method SW-846-8270D – Liquid – Liquid Extraction

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Volume	**500 mL**	
Extract Final Volume	**0.5 mL**	
Spike Level	**20 ng/L**	
Instrument	**NT-1 & NT-2**	**Reporting**
Date Analyzed	**4/23/08**	**Limit**
ARI Data File	**MK96**	**ng/L**
Reporting Units	**ng/L (ppt)**	**Part-per-trillion**
Analyte	**MDL**	**RL**
Naphthalene	3.55	**10.0**
1-Methylnaphthalene	3.13	**10.0**
2-Methylnaphthalene	3.13	**10.0**
Acenaphthylene	2.16	**10.0**
Acenaphthene	5.01	**10.0**
Dibenzofuran	2.46	**10.0**
Fluorene	2.70	**10.0**
Phenanthrene	3.95	**10.0**
Anthracene	2.83	**10.0**
Fluoranthene	6.08	**10.0**
Pyrene	5.62	**10.0**
Benzo(a)Anthracene	4.14	**10.0**
Chrysene	3.49	**10.0**
Benzo(b)Fluoranthene	2.94	**10.0**
Benzo(k)Fluoranthene	3.38	**10.0**
Benzo(a)Pyrene	3.05	**10.0**
Indeno(1,2,3-cd)Pyrene	3.14	**10.0**
Dibenz(a,h)Anthracene	2.26	**10.0**
Benzo(g,h,i)Perylene	4.77	**10.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.

MDL Verifications					
Sample Matrix	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**Recovery**
Water	5.00 ng/L	Liq-Liq	4/23/08	MK96	38.2 – 163 %

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MDL and RL Summary for Gasoline Range Organics
Aqueous Samples – Direct Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Extraction Method	Sample Volume	MDL Spike Level	Instrument ID	MDL mg/L	MDL Date	RL mg/L
NWTPH-G (Toluene – Naphthalene)	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.015[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.060[2]	1/6/10	**0.25**
8015B (2-Methylpentane - 1,2,4-Trimethylbenzene)	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.011[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.032[2]	1/6/10	**0.25**
WA-TPH-G (Toluene – nC_{12})	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.012[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.061[2]	1/6/10	**0.25**
AK101 (nC_6 – nC_{12})	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.011[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.039[2]	1/6/10	**0.10**

ARI Data File	Instrument	Purge Volume (mL)	Date	Spike Level (mg/L)	Gasoline Spike Average Recovery
QD22	PID3	5	1/6/10	0.063	122-142%
JH50	PID1	15	5/10/06	0.015	133%

(1) ARI data file = JH50
(2) ARI data file = QD22

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
Reporting Limit (RL) is the sample concentration equivalent to the lowest concentration standard used to calibrate the instrument.

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MDL and RL Summary for Gasoline Range Organics
Soil Samples – Methanol Extraction Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Sample Prep	MDL Spike Level mg/kg	MDL[1] mg/kg	MDL Date	RL mg/kg
NWTPH-G Toluene – Naphthalene	10g soil in 5 mL Methanol 500 mL FEV	10	2.39	1/6/10	**5**
8015B 2-Methylpentane – 1,2,4-Trimethylbenzene	10g soil in 5 mL Methanol 500 mL FEV	10	2.87	1/6/10	**5**
WA-TPH-G Toluene – nC_{12}	10g soil in 5 mL Methanol 500 mL FEV	10	2.41	1/6/10	**5**
AK101[2] nC_6 – nC_{10}	10g soil in 5 mL Methanol 500 mL FEV	10	2.95	1/6/10	**5**

MDL Verification

ARI Data File	Instrument	Extraction	Analysis Date	Spike Level	Gas Spike Average Recovery
QD23	PID3	MeOH	1/6/10	2.5 mg/kg	120 - 136%

(1) - ARI data file = QD23
(2) - Samples for AK101 analysis of soil are preserved with Methanol in the field.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

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MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Water

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/L	RL mg/L
NWTPH-HCID	(2)	(2)	(2)	(2)	(2)	(2)	**0.63**
NW-TPH-D C_{12}-C_{24}	1/25/09	OE29	Sep Funnel	0.20 mg/L	500 mL 1.0 mL	0.0306	**0.25**
AK102 C_{10}-C_{25}	1/25/09	OE29	Sep Funnel	0.20 mg/L	500 mL 1.0 mL	0.0283	**0.25**
JP-4 Toluene-C14	2/6/07	JN64	Sep Funnel	0.40 mg/L	500 mL 2.0 mL	0.0786	**0.50**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/L	RL mg/L
NWTPH-HCID	(2)	(2)	(2)	(2)	(2)	(2)	**0.63**
NW-TPH-Dext C_{24}-C_{38}	3/11/09	OO47	Sep Funnel	0.40 mg/L	500 mL 1.0 mL	0.027	**0.50**
AK103 C_{25}-C_{38}	3/11/09	OO48	Sep Funnel	0.40 mg/L	500 mL 1.0 mL	0.028	**0.50**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**Recovery**
NWTPH-D / AK-102	0.05 mg/L	Sep Funnel	1/25/09	OE29	TPH-D = 76% AK102 = 76%
JP-4	0.10 mg/L	Sep Funnel	2/6/07	JN64	84%
NW-TPH-Dext	0.10 mg/L	Sep Funnel	3/11/09	OO47	90%
AK103	0.10 mg/L	Sep Funnel	3/11/09	OO48	112%

1. MDL studies performed on FID instrument 3A.
2. MDL studies are not performed for HCID analyses. The reporting limits are specified in the method.

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is equal to the lowest concentration standard use to calibrate the GC-FID adjusted for the final effective volume of the sample extract.

Analytical Resources,Incorporated
Analytical Chemists and Consultants

MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Soil

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**50**
NW-TPH-D C_{12}-C_{24}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
AK102 C_{10}-C_{25}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
JP-4 Toluene-C14	2/13/07	JN65	Microwave	20 mg/kg	10g / 2.0 mL	3.19	**10.0**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**100**
NW-TPH-Dext C_{24}-C_{38}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.694	**10.0**
AK103 C_{25}-C_{36}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.859	**10.0**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**% Recovery**
NWTPH-Dext	5.0 mg/kg	Microwave	2/6/09	OE33	TPH-Dext = 104
AK103	5.0 mg/kg	Microwave	2/6/09	OE33	AK103 = 120
NWTPH-D / AK102	2.5 mg/kg	Microwave	2/6/09	OE33	NWTPH-D = 114, AK102 = 130
JP-4	20 mg/kg	Sonication	2/13/07	JN65	88

(1) - MDL studies performed on Instrument FID-3A.
(2) - RL based on extraction of 10 grams sample (dry weight).
(3) – MDL studies are not performed for HCID analyses.The reporting limits are specified in the method.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

Data Summary Package

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QN55

prepared
by

Analytical Resources, Inc.

VOLATILE ANALYSIS

QN55 : 00037

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: ER-031110-1**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55L
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/17/10 17:23

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	97.1%
Bromofluorobenzene	106%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
TB-2-031110
Page 1 of 1

Lab Sample ID: QN55M
LIMS ID: 10-6233
Matrix: Water
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/17/10 14:27

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	98.2%
Bromofluorobenzene	105%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-031710	Method Blank	10	107%	98.1%	101%	102%	0
LCS-031710	Lab Control	10	111%	97.2%	106%	98.1%	0
LCSD-031710	Lab Control Dup	10	111%	100%	111%	100%	0
QN55L	ER-031110-1	10	112%	97.1%	106%	105%	0
QN55M	Trip Blank	10	108%	98.2%	105%	103%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	70-132	80-143
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-6232 to 10-6233

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031710**
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031710
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT10/AAR
LCSD: NT10/AAR
Date Analyzed LCS: 03/17/10 11:25
LCSD: 03/17/10 11:50

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,2-Dichloroethane	10.5	10.0	105%	10.5	10.0	105%	0.0%
Benzene	9.9	10.0	99.0%	10.1	10.0	101%	2.0%
Toluene	9.9	10.0	99.0%	10.1	10.0	101%	2.0%
Ethylbenzene	10.0	10.0	100%	10.1	10.0	101%	1.0%
m,p-Xylene	20.5	20.0	102%	20.8	20.0	104%	1.5%
o-Xylene	10.2	10.0	102%	10.5	10.0	105%	2.9%
Ethylene Dibromide	11.1	10.0	111%	11.2	10.0	112%	0.9%
Methyl tert-Butyl Ether	16.8	10.0	168%	18.8	10.0	188%	11.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	111%	111%
d8-Toluene	97.2%	100%
Bromofluorobenzene	106%	111%
d4-1,2-Dichlorobenzene	98.1%	100%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0317

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

ARI Job No: QN55 Project: BLAINE

Lab File ID: MB0317 Lab Sample ID: MB0317

Date Analyzed: 03/17/10 Time Analyzed: 1215

Instrument ID: NT10 Heated Purge: (Y/N) N

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0317	LCS0317	LCS0317	1125
02	LCS0317	LCSD0317	LCS0317A	1150
04	TRIP BLANK	QN55M	QN55D	1427
11	ER-031110-1	QN55L	QN55L	1723
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031710**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031710
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/19/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/17/10 12:15

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	98.1%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 20:14

Sample Amount: 3.28 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1,500**	**5,000**	
108-88-3	**Toluene**	**1,500**	**14,000**	
100-41-4	**Ethylbenzene**	**1,500**	**4,000**	
179601-23-1	**m,p-Xylene**	**1,500**	**18,000**	
95-47-6	**o-Xylene**	**1,500**	**6,300**	
1634-04-4	Methyl tert-Butyl Ether	1,500	< 1,500	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.8%
d8-Toluene	84.7%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-17-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55B
LIMS ID: 10-6221
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 19:21

Sample Amount: 3.77 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 36.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	85.3%
Bromofluorobenzene	83.0%
d4-1,2-Dichlorobenzene	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-21-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55C
LIMS ID: 10-6223
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 19:48

Sample Amount: 3.25 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 28.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.5**	**3.6**	
108-88-3	Toluene	1.5	< 1.5	U
100-41-4	**Ethylbenzene**	**1.5**	**1.8**	
179601-23-1	m,p-Xylene	1.5	< 1.5	U
95-47-6	o-Xylene	1.5	< 1.5	U
1634-04-4	Methyl tert-Butyl Ether	1.5	< 1.5	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	86.3%
Bromofluorobenzene	82.8%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-16-7**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55D
LIMS ID: 10-6224
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 16:57

Sample Amount: 17.8 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 27.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**280**	**4,000**	
108-88-3	**Toluene**	**280**	**9,700**	
100-41-4	**Ethylbenzene**	**280**	**2,200**	
179601-23-1	**m,p-Xylene**	**280**	**8,300**	
95-47-6	**o-Xylene**	**280**	**3,000**	
1634-04-4	Methyl tert-Butyl Ether	280	< 280	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	92.6%
d8-Toluene	85.5%
Bromofluorobenzene	82.4%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-16-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55E
LIMS ID: 10-6225
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 15:10

Sample Amount: 3.37 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 35.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.5	< 1.5	U
108-88-3	Toluene	1.5	< 1.5	U
100-41-4	Ethylbenzene	1.5	< 1.5	U
179601-23-1	m,p-Xylene	1.5	< 1.5	U
95-47-6	o-Xylene	1.5	< 1.5	U
1634-04-4	Methyl tert-Butyl Ether	1.5	< 1.5	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	84.4%
Bromofluorobenzene	83.3%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-23-4**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55F
LIMS ID: 10-6226
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 17:20

Sample Amount: 2.02 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 38.9%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**2,500**	**5,100**	
108-88-3	**Toluene**	**2,500**	**11,000**	
100-41-4	**Ethylbenzene**	**2,500**	**55,000**	
179601-23-1	**m,p-Xylene**	**2,500**	**220,000**	
95-47-6	**o-Xylene**	**2,500**	**66,000**	
1634-04-4	Methyl tert-Butyl Ether	2,500	< 2,500	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	87.1%
Bromofluorobenzene	83.7%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-23-8**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55G
LIMS ID: 10-6227
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 15:36

Sample Amount: 4.53 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.1**	**39**	
108-88-3	**Toluene**	**1.1**	**8.8**	
100-41-4	**Ethylbenzene**	**1.1**	**92**	
179601-23-1	**m,p-Xylene**	**1.1**	**280**	**ES**
95-47-6	**o-Xylene**	**1.1**	**76**	
1634-04-4	Methyl tert-Butyl Ether	1.1	< 1.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	87.9%
Bromofluorobenzene	87.4%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-23-8**
Page 1 of 1 **REANALYSIS**

Lab Sample ID: QN55G
LIMS ID: 10-6227
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 17:47

Sample Amount: 59.9 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	84	< 84	U
108-88-3	Toluene	84	< 84	U
100-41-4	**Ethylbenzene**	**84**	**83**	**J**
179601-23-1	**m,p-Xylene**	**84**	**280**	
95-47-6	**o-Xylene**	**84**	**73**	**J**
1634-04-4	Methyl tert-Butyl Ether	84	< 84	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	88.3%
d8-Toluene	84.7%
Bromofluorobenzene	82.9%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-23-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55H
LIMS ID: 10-6228
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 16:53

Sample Amount: 3.14 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 36.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.6**	**1.0**	**J**
108-88-3	Toluene	1.6	< 1.6	U
100-41-4	Ethylbenzene	1.6	< 1.6	U
179601-23-1	m,p-Xylene	1.6	< 1.6	U
95-47-6	o-Xylene	1.6	< 1.6	U
1634-04-4	Methyl tert-Butyl Ether	1.6	< 1.6	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	84.4%
Bromofluorobenzene	84.3%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-8**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55I
LIMS ID: 10-6229
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 17:50

Sample Amount: 2.78 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 31.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1,800**	**11,000**	
108-88-3	**Toluene**	**1,800**	**43,000**	
100-41-4	**Ethylbenzene**	**1,800**	**14,000**	
179601-23-1	**m,p-Xylene**	**1,800**	**60,000**	
95-47-6	**o-Xylene**	**1,800**	**21,000**	
1634-04-4	Methyl tert-Butyl Ether	1,800	< 1,800	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.0%
d8-Toluene	86.3%
Bromofluorobenzene	81.7%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-15**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55J
LIMS ID: 10-6230
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 18:17

Sample Amount: 8.71 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 21.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**570**	**3,600**	
108-88-3	**Toluene**	**570**	**28,000**	
100-41-4	**Ethylbenzene**	**570**	**11,000**	
179601-23-1	**m,p-Xylene**	**570**	**49,000**	
95-47-6	**o-Xylene**	**570**	**18,000**	
1634-04-4	Methyl tert-Butyl Ether	570	< 570	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.6%
d8-Toluene	85.7%
Bromofluorobenzene	82.6%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-5-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QN55K
LIMS ID: 10-6231
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 16:30

Sample Amount: 5.37 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 11.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.9	< 0.9	U
108-88-3	Toluene	0.9	< 0.9	U
100-41-4	Ethylbenzene	0.9	< 0.9	U
179601-23-1	m,p-Xylene	0.9	< 0.9	U
95-47-6	o-Xylene	0.9	< 0.9	U
1634-04-4	Methyl tert-Butyl Ether	0.9	< 0.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	86.6%
Bromofluorobenzene	82.9%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-031810	Method Blank	Med	91.5%	86.4%	81.3%	100%	0
LCS-031810	Lab Control	Med	86.4%	84.8%	86.6%	102%	0
LCSD-031810	Lab Control Dup	Med	87.0%	86.2%	86.3%	102%	0
QN55A	SB-22-5	Med	98.8%	84.7%	81.3%	102%	0
QN55AMS	SB-22-5	Med	87.1%	83.9%	86.7%	102%	0
QN55AMSD	SB-22-5	Med	87.9%	83.8%	85.3%	102%	0
MB-031810	Method Blank	Low	91.5%	86.4%	81.3%	100%	0
LCS-031810	Lab Control	Low	86.4%	84.8%	86.6%	102%	0
LCSD-031810	Lab Control Dup	Low	87.0%	86.2%	86.3%	102%	0
QN55B	SB-17-16	Low	108%	85.3%	83.0%	107%	0
QN55C	SB-21-16	Low	104%	86.3%	82.8%	105%	0
MB-031910	Method Blank	Med	90.8%	88.3%	81.0%	99.5%	0
LCS-031910	Lab Control	Med	85.7%	85.9%	83.7%	102%	0
LCSD-031910	Lab Control Dup	Med	89.1%	85.3%	85.3%	102%	0
QN55D	SB-16-7	Med	92.6%	85.5%	82.4%	102%	0
MB-031910	Method Blank	Low	90.8%	88.3%	81.0%	99.5%	0
LCS-031910	Lab Control	Low	85.7%	85.9%	83.7%	102%	0
LCSD-031910	Lab Control Dup	Low	89.1%	85.3%	85.3%	102%	0
QN55E	SB-16-16	Low	110%	84.4%	83.3%	106%	0
QN55F	SB-23-4	Med	100%	87.1%	83.7%	102%	0
MB-032210	Method Blank	Med	99.5%	87.4%	82.6%	103%	0
LCS-032210	Lab Control	Med	92.6%	83.7%	85.7%	101%	0
LCSD-032210	Lab Control Dup	Med	92.5%	84.9%	84.4%	102%	0
QN55G	SB-23-8	Low	102%	87.9%	87.4%	106%	0
QN55GRE	SB-23-8	Med	88.3%	84.7%	82.9%	102%	0
MB-032210	Method Blank	Low	99.5%	87.4%	82.6%	103%	0
LCS-032210	Lab Control	Low	92.6%	83.7%	85.7%	101%	0
LCSD-032210	Lab Control Dup	Low	92.5%	84.9%	84.4%	102%	0
QN55H	SB-23-16	Low	106%	84.4%	84.3%	106%	0
QN55I	SB-22-8	Med	95.0%	86.3%	81.7%	102%	0
QN55J	SB-22-15	Med	89.6%	85.7%	82.6%	102%	0
QN55K	MW-5-16	Low	107%	86.6%	82.9%	106%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-6220 to 10-6231

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-5**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst MS: FINN5/PAB
MSD: FINN5/PAB
Date Analyzed MS: 03/19/10 19:37
MSD: 03/19/10 20:04

Sample Amount MS: 3.28 mg-dry-wt
MSD: 3.28 mg-dry-wt
Purge Volume MS: 5.0 mL
MSD: 5.0 mL
Moisture: 25.4%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzene	5020	83000	76200	102%	82600	76200	102%	0.5%
Toluene	14400	89000	76200	97.9%	88700	76200	97.5%	0.3%
Ethylbenzene	4000	84700	76200	106%	84200	76200	105%	0.6%
m,p-Xylene	17700	175000	152000	103%	173000	152000	102%	1.1%
o-Xylene	6300	82800	76200	100%	82100	76200	99.5%	0.8%
Methyl tert-Butyl Ether	< 1520 U	143000	152000	94.1%	145000	152000	95.4%	1.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-5**
 MATRIX SPIKE

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 19:37

Sample Amount: 3.28 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1,500	---	
108-88-3	Toluene	1,500	---	
100-41-4	Ethylbenzene	1,500	---	
179601-23-1	m,p-Xylene	1,500	---	
95-47-6	o-Xylene	1,500	---	
1634-04-4	Methyl tert-Butyl Ether	1,500	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	87.1%
d8-Toluene	83.9%
Bromofluorobenzene	86.7%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-22-5**
Page 1 of 1 **MATRIX SPIKE DUP**

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 20:04

Sample Amount: 3.28 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 25.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1,500	---	
108-88-3	Toluene	1,500	---	
100-41-4	Ethylbenzene	1,500	---	
179601-23-1	m,p-Xylene	1,500	---	
95-47-6	o-Xylene	1,500	---	
1634-04-4	Methyl tert-Butyl Ether	1,500	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	87.9%
d8-Toluene	83.8%
Bromofluorobenzene	85.3%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031810**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031810
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/18/10 10:22
LCSD: 03/18/10 10:56

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2560	2500	102%	2550	2500	102%	0.4%
Toluene	2530	2500	101%	2510	2500	100%	0.8%
Ethylbenzene	2710	2500	108%	2640	2500	106%	2.6%
m,p-Xylene	5400	5000	108%	5200	5000	104%	3.8%
o-Xylene	2570	2500	103%	2500	2500	100%	2.8%
Methyl tert-Butyl Ether	5020	5000	100%	4880	5000	97.6%	2.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.4%	87.0%
d8-Toluene	84.8%	86.2%
Bromofluorobenzene	86.6%	86.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031810**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031810
LIMS ID: 10-6221
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/18/10 10:22
LCSD: 03/18/10 10:56

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	51.2	50.0	102%	50.9	50.0	102%	0.6%
Toluene	50.6	50.0	101%	50.3	50.0	101%	0.6%
Ethylbenzene	54.1	50.0	108%	52.9	50.0	106%	2.2%
m,p-Xylene	108	100	108%	104	100	104%	3.8%
o-Xylene	51.5	50.0	103%	50.0	50.0	100%	3.0%
Methyl tert-Butyl Ether	100	100	100%	97.6	100	97.6%	2.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	86.4%	87.0%
d8-Toluene	84.8%	86.2%
Bromofluorobenzene	86.6%	86.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031910**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-031910
LIMS ID: 10-6224
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/19/10 09:36
LCSD: 03/19/10 10:11

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2240	2500	89.6%	2500	2500	100%	11.0%
Toluene	2250	2500	90.0%	2470	2500	98.8%	9.3%
Ethylbenzene	2390	2500	95.6%	2660	2500	106%	10.7%
m,p-Xylene	4690	5000	93.8%	5240	5000	105%	11.1%
o-Xylene	2240	2500	89.6%	2490	2500	99.6%	10.6%
Methyl tert-Butyl Ether	4460	5000	89.2%	4860	5000	97.2%	8.6%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	85.7%	89.1%
d8-Toluene	85.9%	85.3%
Bromofluorobenzene	83.7%	85.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-031910**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-031910
LIMS ID: 10-6225
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/19/10 09:36
LCSD: 03/19/10 10:11

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	44.7	50.0	89.4%	50.0	50.0	100%	11.2%
Toluene	45.1	50.0	90.2%	49.4	50.0	98.8%	9.1%
Ethylbenzene	47.8	50.0	95.6%	53.2	50.0	106%	10.7%
m,p-Xylene	93.9	100	93.9%	105	100	105%	11.2%
o-Xylene	44.8	50.0	89.6%	49.8	50.0	99.6%	10.6%
Methyl tert-Butyl Ether	89.2	100	89.2%	97.1	100	97.1%	8.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	85.7%	89.1%
d8-Toluene	85.9%	85.3%
Bromofluorobenzene	83.7%	85.3%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032210**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032210
LIMS ID: 10-6227
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/22/10 10:38
LCSD: 03/22/10 11:16

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2370	2500	94.8%	2490	2500	99.6%	4.9%
Toluene	2300	2500	92.0%	2480	2500	99.2%	7.5%
Ethylbenzene	2570	2500	103%	2630	2500	105%	2.3%
m,p-Xylene	4990	5000	99.8%	5160	5000	103%	3.3%
o-Xylene	2400	2500	96.0%	2440	2500	97.6%	1.7%
Methyl tert-Butyl Ether	5020	5000	100%	4980	5000	99.6%	0.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	92.6%	92.5%
d8-Toluene	83.7%	84.9%
Bromofluorobenzene	85.7%	84.4%
d4-1,2-Dichlorobenzene	101%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032210**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032210
LIMS ID: 10-6228
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/22/10 10:38
LCSD: 03/22/10 11:16

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	47.4	50.0	94.8%	49.9	50.0	99.8%	5.1%
Toluene	46.1	50.0	92.2%	49.7	50.0	99.4%	7.5%
Ethylbenzene	51.5	50.0	103%	52.6	50.0	105%	2.1%
m,p-Xylene	99.8	100	99.8%	103	100	103%	3.2%
o-Xylene	47.9	50.0	95.8%	48.8	50.0	97.6%	1.9%
Methyl tert-Butyl Ether	100	100	100%	99.7	100	99.7%	0.3%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	92.6%	92.5%
d8-Toluene	83.7%	84.9%
Bromofluorobenzene	85.7%	84.4%
d4-1,2-Dichlorobenzene	101%	102%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0318

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QN55

Project: BLAINE

Lab File ID: MB0318

Lab Sample ID: MB0318

Date Analyzed: 03/18/10

Time Analyzed: 1123

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0318	LCS0318	LCS0318	1022
02	LCS0318	LCS0318	LCS0318A	1056
03	SB-17-16	QN55B	QN55B	1921
04	SB-21-16	QN55C	QN55C	1948
05	SB-22-5	QN55A	QN55A	2014
06				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031810**
METHOD BLANK
Page 1 of 1

Lab Sample ID: MB-031810
LIMS ID: 10-6221
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 11:23

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	86.4%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031810**
METHOD BLANK

Lab Sample ID: MB-031810
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/18/10 11:23

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	86.4%
Bromofluorobenzene	81.3%
d4-1,2-Dichlorobenzene	100%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0319

Lab Name: ANALYTICAL RESOURCES, INC
Client: SAIC

ARI Job No: QN55
Project: BLAINE

Lab File ID: MB0319
Lab Sample ID: MB0319

Date Analyzed: 03/19/10
Time Analyzed: 1038

Instrument ID: FINN5
Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0319	LCS0319	LCS0319	0936
02	LCS0319	LCS0319	LCS0319A	1011
03	SB-16-16	QN55E	QN55E	1510
04	SB-23-8	QN55G	QN55G	1536
05	MW-5-16	QN55K	QN55K	1630
06	SB-16-7	QN55D	QN55D	1657
07	SB-22-8	QN55I	QN55I	1750
08	SB-22-15	QN55J	QN55J	1817
09	SB-22-5 MS	QN55AMS	QN55AMS	1937
10	SB-22-5 MSD	QN55AMSD	QN55AMSD	2004
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031910**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031910
LIMS ID: 10-6224
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 10:38

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.8%
d8-Toluene	88.3%
Bromofluorobenzene	81.0%
d4-1,2-Dichlorobenzene	99.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-031910**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-031910
LIMS ID: 10-6225
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/19/10 10:38

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.8%
d8-Toluene	88.3%
Bromofluorobenzene	81.0%
d4-1,2-Dichlorobenzene	99.5%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0322

Lab Name: ANALYTICAL RESOURCES, INC
Client: SAIC

ARI Job No: QN55
Project: BLAINE

Lab File ID: MB0322
Lab Sample ID: MB0322

Date Analyzed: 03/22/10
Time Analyzed: 1143

Instrument ID: FINN5
Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0322	LCS0322	LCS0322	1038
02	LCS0322	LCS0322	LCS0322A	1116
03	SB-23-16	QN55H	QN55H2	1653
04	SB-23-4	QN55F	QN55F2	1720
05	SB-23-8	QN55G	QN55G2	1747
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032210**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-032210
LIMS ID: 10-6227
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 11:43

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	87.4%
Bromofluorobenzene	82.6%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032210**
METHOD BLANK
Page 1 of 1

Lab Sample ID: MB-032210
LIMS ID: 10-6228
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 11:43

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	87.4%
Bromofluorobenzene	82.6%
d4-1,2-Dichlorobenzene	103%

SIM SEMIVOLATILE ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: ER-031110-1
SAMPLE

Lab Sample ID: QN55L
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/29/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Date Extracted: 03/16/10
Date Analyzed: 03/27/10 13:38
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**0.018**
91-57-6	2-Methylnaphthalene	0.010	< 0.010 U
90-12-0	1-Methylnaphthalene	0.010	< 0.010 U
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	Acenaphthene	0.010	< 0.010 U
86-73-7	Fluorene	0.010	< 0.010 U
85-01-8	Phenanthrene	0.010	< 0.010 U
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	Dibenzofuran	0.010	< 0.010 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.0%
d14-Dibenzo(a,h)anthracene	44.7%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714

Client ID	MNP	DBA	TOT OUT
MB-031610	60.0%	42.0%	0
LCS-031610	59.0%	58.3%	0
LCSD-031610	75.7%	61.3%	0
ER-031110-1	66.0%	44.7%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(42-100)	(31-109)
(DBA) = d14-Dibenzo(a,h)anthracene	(40-125)	(10-133)

Prep Method: SW3520C
Log Number Range: 10-6232 to 10-6232

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: LCS-031610
LAB CONTROL SAMPLE

Lab Sample ID: LCS-031610
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/29/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 03/16/10

Date Analyzed LCS: 03/27/10 12:51
LCSD: 03/27/10 13:14
Instrument/Analyst LCS: NT8/YZ
LCSD: NT8/YZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	0.149	0.300	49.7%	0.203	0.300	67.7%	30.7%
2-Methylnaphthalene	0.171	0.300	57.0%	0.228	0.300	76.0%	28.6%
1-Methylnaphthalene	0.166	0.300	55.3%	0.220	0.300	73.3%	28.0%
Acenaphthylene	0.140	0.300	46.7%	0.186	0.300	62.0%	28.2%
Acenaphthene	0.153	0.300	51.0%	0.204	0.300	68.0%	28.6%
Fluorene	0.178	0.300	59.3%	0.238	0.300	79.3%	28.8%
Phenanthrene	0.193	0.300	64.3%	0.250	0.300	83.3%	25.7%
Anthracene	0.136	0.300	45.3%	0.175	0.300	58.3%	25.1%
Fluoranthene	0.214	0.300	71.3%	0.276	0.300	92.0%	25.3%
Pyrene	0.203	0.300	67.7%	0.261	0.300	87.0%	25.0%
Benzo(a)anthracene	0.226	0.300	75.3%	0.276	0.300	92.0%	19.9%
Chrysene	0.163 Q	0.300	54.3%	0.210 Q	0.300	70.0%	25.2%
Benzo(b)fluoranthene	0.240	0.300	80.0%	0.285	0.300	95.0%	17.1%
Benzo(k)fluoranthene	0.153	0.300	51.0%	0.174	0.300	58.0%	12.8%
Benzo(a)pyrene	0.144	0.300	48.0%	0.146	0.300	48.7%	1.4%
Indeno(1,2,3-cd)pyrene	0.158	0.300	52.7%	0.162	0.300	54.0%	2.5%
Dibenz(a,h)anthracene	0.168	0.300	56.0%	0.185	0.300	61.7%	9.6%
Benzo(g,h,i)perylene	0.148	0.300	49.3%	0.147	0.300	49.0%	0.7%
Dibenzofuran	0.165	0.300	55.0%	0.225	0.300	75.0%	30.8%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	59.0%	75.7%
d14-Dibenzo(a,h)anthracene	58.3%	61.3%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

QN55MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

ARI Job No: QN55 Project: BLAINE

Lab File ID: QN55MB Date Extracted: 03/16/10

Instrument ID: NT8 Date Analyzed: 03/27/10

Matrix: LIQUID Time Analyzed: 1227

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	QN55LCSW1	QN55LCSW1	QN55SB	03/27/10
02	QN55LCSDW1	QN55LCSDW1	QN55SBD	03/27/10
03	ER-031110-1	QN55L	QN55L	03/27/10
04				
05				
06				
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08				
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MB-031610
METHOD BLANK

Lab Sample ID: MB-031610
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/29/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Extracted: 03/16/10
Date Analyzed: 03/27/10 12:27
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	0.010	< 0.010 U
91-57-6	2-Methylnaphthalene	0.010	< 0.010 U
90-12-0	1-Methylnaphthalene	0.010	< 0.010 U
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	Acenaphthene	0.010	< 0.010 U
86-73-7	Fluorene	0.010	< 0.010 U
85-01-8	Phenanthrene	0.010	< 0.010 U
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	Dibenzofuran	0.010	< 0.010 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.0%
d14-Dibenzo(a,h)anthracene	42.0%

TPHG ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/11/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	DL	Range	Result
MB-032210	Method Blank	03/22/10	1.0	Gasoline	< 0.25 U
10-6232		PID3		HC ID	---
				Trifluorotoluene	97.9%
				Bromobenzene	99.2%
QN55L	ER-031110-1	03/22/10	1.0	Gasoline	< 0.25 U
10-6232		PID3		HC ID	---
				Trifluorotoluene	98.4%
				Bromobenzene	96.7%
QN55M	Trip Blank	03/22/10	1.0	Gasoline	< 0.25 U
10-6233		PID3		HC ID	---
				Trifluorotoluene	104%
				Bromobenzene	102%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

FORM I

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: QN55
Matrix: Water

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	TFT	BBZ	TOT OUT
MB-032210	97.9%	99.2%	0
LCS-032210	103%	102%	0
LCSD-032210	101%	97.4%	0
ER-031110-1	98.4%	96.7%	0
Trip Blank	104%	102%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 10-6232 to 10-6233

FORM II TPHG

QN55 : 00083

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032210
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032210
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/22/10 07:18
LCSD: 03/22/10 07:43
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.02	1.00	102%	1.03	1.00	103%	1.0%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	103%	101%
Bromobenzene	102%	97.4%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.: MB0322S1

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN55
Project No.: BLAINE

Date Analyzed : 03/22/10
Matrix: WATER

Time Analyzed : 0808
Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0322S1	LCS0322	03/22/10
02	LCSD0322S1	LCSD0322	03/22/10
03	TRIP BLANK	QN55M	03/22/10
04	ER-031110-1	QN55L	03/22/10
05			
06			
07			
08			
09			
10			
11			

FORM IV BETX/GAS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/10/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-032310	Method Blank	03/23/10	Dry	Gasoline	< 5.0 U
10-6220		PID3		HC ID	---
				Trifluorotoluene	94.3%
				Bromobenzene	94.5%
QN55A	SB-22-5	03/23/10	Dry	**Gasoline**	**4400**
10-6220		PID3		HC ID	GAS
				Trifluorotoluene	112%
				Bromobenzene	107%
MB-032210	Method Blank	03/22/10	Dry	Gasoline	< 5.0 U
10-6221		PID3		HC ID	---
				Trifluorotoluene	97.9%
				Bromobenzene	99.2%
QN55B	SB-17-16	03/22/10	Dry	Gasoline	< 9.6 U
10-6221		PID3		HC ID	---
				Trifluorotoluene	102%
				Bromobenzene	101%
QN55C	SB-21-16	03/22/10	Dry	Gasoline	< 8.6 U
10-6223		PID3		HC ID	---
				Trifluorotoluene	101%
				Bromobenzene	101%
QN55D	SB-16-7	03/22/10	Dry	**Gasoline**	**910**
10-6224		PID3		HC ID	GAS/GRO
				Trifluorotoluene	110%
				Bromobenzene	111%
QN55E	SB-16-16	03/22/10	Dry	Gasoline	< 9.6 U
10-6225		PID3		HC ID	---
				Trifluorotoluene	102%
				Bromobenzene	101%
QN55F	SB-23-4	03/23/10	Dry	**Gasoline**	**15000**
10-6226		PID3		HC ID	GAS
				Trifluorotoluene	101%
				Bromobenzene	108%
QN55G	SB-23-8	03/22/10	Dry	Gasoline	< 8.1 U
10-6227		PID3		HC ID	---
				Trifluorotoluene	103%
				Bromobenzene	103%
QN55H	SB-23-16	03/22/10	Dry	Gasoline	< 10 U
10-6228		PID3		HC ID	---
				Trifluorotoluene	98.2%
				Bromobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/11/10
Date Received: 03/11/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
QN55I	SB-22-8	03/23/10	Dry	**Gasoline**	**740**
10-6229		PID3		HC ID	GAS
				Trifluorotoluene	116%
				Bromobenzene	110%
QN55J	SB-22-15	03/22/10	Dry	**Gasoline**	**1400**
10-6230		PID3		HC ID	GAS
				Trifluorotoluene	105%
				Bromobenzene	103%
QN55K	MW-5-16	03/22/10	Dry	Gasoline	< 6.2 U
10-6231		PID3		HC ID	---
				Trifluorotoluene	100%
				Bromobenzene	101%

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: QN55
Matrix: Soil

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	BFB	TFT	BBZ	TOT OUT
MB-032310	NA	94.3%	94.5%	0
LCS-032310	NA	98.7%	96.0%	0
LCSD-032310	NA	98.8%	95.1%	0
SB-22-5	NA	112%	107%	0
MB-032210	NA	97.9%	99.2%	0
LCS-032210	NA	103%	102%	0
LCSD-032210	NA	101%	97.4%	0
SB-17-16	NA	102%	101%	0
SB-21-16	NA	101%	101%	0
SB-16-7	NA	110%	111%	0
SB-16-16	NA	102%	101%	0
SB-23-4	NA	101%	108%	0
SB-23-8	NA	103%	103%	0
SB-23-16	NA	98.2%	100%	0
SB-22-8	NA	116%	110%	0
SB-22-15	NA	105%	103%	0
SB-22-15 MS	NA	102%	103%	0
SB-22-15 MSD	NA	100%	101%	0
MW-5-16	NA	100%	101%	0

	LCS/MB LIMITS	QC LIMITS
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(TFT) = Trifluorotoluene	(80-120)	(66-123)
(BBZ) = Bromobenzene	(80-120)	(62-130)

Log Number Range: 10-6220 to 10-6231

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: SB-22-15
MATRIX SPIKE

Lab Sample ID: QN55J
LIMS ID: 10-6230
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Date Analyzed MS: 03/22/10 19:53
MSD: 03/22/10 20:18
Instrument/Analyst MS: PID3/MH
MSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount MS: 8.27 mg-dry-wt
MSD: 8.27 mg-dry-wt

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	1390	2010	605	102%	1970	605	95.9%	2.0%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	102%	100%
Bromobenzene	103%	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032210
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032210
LIMS ID: 10-6221
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/22/10 07:18
LCSD: 03/22/10 07:43
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	51.2	50.0	102%	51.6	50.0	103%	0.8%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	103%	101%
Bromobenzene	102%	97.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032310
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032310
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/23/10 06:06
LCSD: 03/23/10 06:30
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	53.0	50.0	106%	50.1	50.0	100%	5.6%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	98.7%	98.8%
Bromobenzene	96.0%	95.1%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.: MB0322S1

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN55
Project No.: BLAINE

Date Analyzed : 03/22/10
Matrix: SOIL

Time Analyzed : 0808
Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0322S1	LCS0322	03/22/10
02	LCSD0322S1	LCSD0322	03/22/10
03	SB-17-16	QN55B	03/22/10
04	SB-21-16	QN55C	03/22/10
05	SB-16-7	QN55D	03/22/10
06	MW-5-16	QN55K	03/22/10
07	SB-16-16	QN55E	03/22/10
08	SB-23-8	QN55G	03/22/10
09	SB-23-16	QN55H	03/22/10
10	SB-22-15	QN55J	03/22/10
11			
12			
13			
14			
15			
16			
17			
18			

FORM IV BETX/GAS

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.: MB0323S1

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE APP. INTERNATIONAL COR

SDG No.: QN55
Project No.: BLAINE

Date Analyzed : 03/23/10
Matrix: SOIL

Time Analyzed : 0655
Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS323S1	LCS323	03/23/10
02	LCSD0323S1	LCSD0323	03/23/10
03	SB-22-5	QN55A	03/23/10
04	SB-22-8	QN55I	03/23/10
05	SB-23-4	QN55F	03/23/10
06			
07			
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FORM IV BETX/GAS

TPHD ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Water

QC Report No: QN55-Science App. International
Project: Blaine
188714

Data Release Authorized:
Reported: 03/19/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-031610	Method Blank	03/16/10	03/16/10	1.00	Diesel	0.25	< 0.25 U
10-6232	HC ID: ---		FID3A	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		86.5%
QN55L	ER-031110-1	03/16/10	03/16/10	1.00	Diesel	0.25	< 0.25 U
10-6232	HC ID: ---		FID3A	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		79.6%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714

Client ID	OTER	TOT OUT
MB-031610	86.5%	0
LCS-031610	88.8%	0
LCSD-031610	90.2%	0
ER-031110-1	79.6%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(51-120)	(41-121)

Prep Method: SW3510C
Log Number Range: 10-6232 to 10-6232

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-031610**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-031610 QC Report No: QN55-Science App. International Corp
LIMS ID: 10-6232 Project: Blaine
Matrix: Water 188714
Data Release Authorized: Date Sampled: 03/11/10
Reported: 03/19/10 Date Received: 03/11/10

Date Extracted LCS/LCSD: 03/16/10 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 03/16/10 18:46 Final Extract Volume LCS: 1.0 mL
LCSD: 03/16/10 19:04 LCSD: 1.0 mL
Instrument/Analyst LCS: FID/MS Dilution Factor LCS: 1.00
LCSD: FID/MS LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2.40	3.00	80.0%	2.37	3.00	79.0%	1.3%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	88.8%	90.2%

Results reported in mg/L
RPD calculated using sample concentrations per SW846.

TPH METHOD BLANK SUMMARY

BLANK NO.

QN55MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QN55 Project No.: BLAINE

Date Extracted: 03/16/10 Matrix: LIQUID

Date Analyzed : 03/16/10 Instrument ID : FID3A

Time Analyzed : 1921

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	ER-031110-1	QN55L	03/16/10
02	QN55LCSW1	QN55LCSW1	03/16/10
03	QN55LCSDW1	QN55LCSDW1	03/16/10

FORM IV TPH

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 2
Matrix: Soil

ANALYTICAL RESOURCES INCORPORATED

QC Report No: QN55-Science App. Internationa
Project: Blaine
188714

Data Release Authorized: VT
Reported: 03/20/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-031710	Method Blank	03/17/10	03/18/10	1.00	Diesel	5.0	< 5.0 U
10-6220	HC ID: ---		FID3A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		92.3%
QN55A	SB-22-5	03/17/10	03/18/10	1.00	**Diesel**	**6.7**	**50**
10-6220	HC ID: **DIESEL**		FID3A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		82.8%
QN55B	SB-17-16	03/17/10	03/18/10	1.00	Diesel	7.9	< 7.9 U
10-6221	HC ID: ---		FID3A	1.0	Motor Oil	16	< 16 U
					o-Terphenyl		78.7%
QN55C	SB-21-16	03/17/10	03/18/10	1.00	Diesel	6.5	< 6.5 U
10-6223	HC ID: ---		FID3A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		78.0%
QN55D	SB-16-7	03/17/10	03/19/10	1.00	Diesel	6.9	< 6.9 U
10-6224	HC ID: ---		FID3A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		71.9%
QN55E	SB-16-16	03/17/10	03/19/10	1.00	Diesel	7.8	< 7.8 U
10-6225	HC ID: ---		FID3A	1.0	Motor Oil	16	< 16 U
					o-Terphenyl		76.4%
QN55F	SB-23-4	03/17/10	03/19/10	1.00	**Diesel**	**7.6**	**170**
10-6226	HC ID: **DIESEL/MOTOR OIL**		FID3A	1.0	**Motor Oil**	**15**	**42**
					o-Terphenyl		82.3%
QN55G	SB-23-8	03/17/10	03/19/10	1.00	Diesel	6.6	< 6.6 U
10-6227	HC ID: ---		FID3A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		76.5%
QN55H	SB-23-16	03/17/10	03/19/10	1.00	Diesel	7.4	< 7.4 U
10-6228	HC ID: ---		FID3A	1.0	Motor Oil	15	< 15 U
					o-Terphenyl		77.1%
QN55I	SB-22-8	03/17/10	03/19/10	1.00	**Diesel**	**7.0**	**41**
10-6229	HC ID: **DIESEL**		FID3A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		75.4%
QN55J	SB-22-15	03/17/10	03/19/10	1.00	**Diesel**	**6.4**	**58**
10-6230	HC ID: **DIESEL**		FID3A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		78.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 2 of 2
Matrix: Soil

QC Report No: QN55-Science App. Internationa
Project: Blaine
188714

Data Release Authorized: VTS
Reported: 03/20/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
QN55K	MW-5-16	03/17/10	03/19/10	1.00	Diesel	5.3	< 5.3 U
10-6231	HC ID: ---		FID3A	1.0	Motor Oil	11	< 11 U
					o-Terphenyl		78.8%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714

Client ID	OTER	TOT OUT
MB-031710	92.3%	0
LCS-031710	99.6%	0
SB-22-5	82.8%	0
SB-22-5 MS	93.8%	0
SB-22-5 MSD	90.6%	0
SB-17-16	78.7%	0
SB-21-16	78.0%	0
SB-16-7	71.9%	0
SB-16-16	76.4%	0
SB-23-4	82.3%	0
SB-23-8	76.5%	0
SB-23-16	77.1%	0
SB-22-8	75.4%	0
SB-22-15	78.7%	0
MW-5-16	78.8%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(63-115)	(49-120)

Prep Method: SW3546
Log Number Range: 10-6220 to 10-6231

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: SB-22-5**
Page 1 of 1 **MS/MSD**

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized: VJS
Reported: 03/20/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Date Extracted MS/MSD: 03/17/10

Date Analyzed MS: 03/18/10 22:53
MSD: 03/18/10 23:10
Instrument/Analyst MS: FID/MS
MSD: FID/MS

Sample Amount MS: 7.47 g-dry-wt
MSD: 7.50 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.0
MSD: 1.0
Percent Moisture: 25.4%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	49.5	210	201	79.9%	205	200	77.8%	2.4%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	93.8%	90.6%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-031710**
Page 1 of 1 **LAB CONTROL**

Lab Sample ID: LCS-031710
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized: VTS
Reported: 03/20/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Date Extracted: 03/17/10
Date Analyzed: 03/18/10 22:19
Instrument/Analyst: FID/MS

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	126	150	84.0%

TPHD Surrogate Recovery

o-Terphenyl	99.6%

Results reported in mg/kg

TPH METHOD BLANK SUMMARY

BLANK NO.

QN55MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QN55 Project No.: BLAINE

Date Extracted: 03/17/10 Matrix: SOLID

Date Analyzed : 03/18/10 Instrument ID : FID3A

Time Analyzed : 2202

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	QN55LCSS1	QN55LCSS1	03/18/10
02	SB-22-5	QN55A	03/18/10
03	SB-22-5 MS	QN55AMS	03/18/10
04	SB-22-5 MSD	QN55AMSD	03/18/10
05	SB-17-16	QN55B	03/18/10
06	SB-21-16	QN55C	03/18/10
07	SB-16-7	QN55D	03/19/10
08	SB-16-16	QN55E	03/19/10
09	SB-23-4	QN55F	03/19/10
10	SB-23-8	QN55G	03/19/10
11	SB-23-16	QN55H	03/19/10
12	SB-22-8	QN55I	03/19/10
13	SB-22-15	QN55J	03/19/10
14	MW-5-16	QN55K	03/19/10
15	N	QN91A	03/19/10
16	S	QN91B	03/19/10
17	B	QN91C	03/19/10
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

FORM IV TPH

METALS ANALYSIS

QN55 : 00105

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-22-5
SAMPLE

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

Percent Total Solids: 76.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	7439-92-1	Lead	6	6	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-23-4
SAMPLE

Lab Sample ID: QN55F
LIMS ID: 10-6226
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Percent Total Solids: 67.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	**7439-92-1**	**Lead**	3	**14**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-22-8
SAMPLE

Lab Sample ID: QN55I
LIMS ID: 10-6229
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Percent Total Solids: 65.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/24/10	7439-92-1	Lead	7	7	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-22-15
SAMPLE

Lab Sample ID: QN55J
LIMS ID: 10-6230
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Percent Total Solids: 88.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	7439-92-1	Lead	2	2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: SB-22-5
MATRIX SPIKE

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	6 U	255	253	101%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: SB-22-5
DUPLICATE

Lab Sample ID: QN55A
LIMS ID: 10-6220
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/10/10
Date Received: 03/11/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	6 U	7	15.4%	+/- 6	L

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: QN55LCS
LIMS ID: 10-6226
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	198	200	99.0%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: QN55MB
LIMS ID: 10-6226
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	03/18/10	6010B	03/23/10	7439-92-1	Lead	2	2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: ER-031110-1
SAMPLE

Lab Sample ID: QN55L
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/15/10	6010B	03/23/10	7439-92-1	Lead	0.02	0.02	U

Calculated Hardness (mg-CaCO3/L): < 0.33 U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: ER-031110-1
MATRIX SPIKE

Lab Sample ID: QN55L
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	0.02 U	2.01	2.00	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: ER-031110-1
DUPLICATE

Lab Sample ID: QN55L
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/11/10
Date Received: 03/11/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	0.02 U	0.02 U	0.0%	+/- 0.02	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: QN55LCS
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	2.03	2.00	102%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: QN55MB
LIMS ID: 10-6232
Matrix: Water
Data Release Authorized:
Reported: 03/25/10

QC Report No: QN55-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/15/10	6010B	03/23/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

TOTAL SOLIDS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/23/10

Worklist: 204
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. QN55A 10-6220				$ 74.60
2. QN55B 10-6221				$ 63.20
3. QN55C 10-6223				$ 71.90
4. QN55D 10-6224				$ 72.80
5. QN55E 10-6225				$ 64.30
6. QN55F 10-6226				$ 61.10
7. QN55G 10-6227				$ 75.20
8. QN55H 10-6228				$ 63.60
9. QN55I 10-6229				$ 68.20
10. QN55J 10-6230				$ 78.30
11. QN55K 10-6231				$ 88.90

Worklist ID: 204 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Extractions Total Solids-extts
Data By: Pat Dugan
Created: 3/17/10

Worklist: 8075
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QN55A 10-6220 SB-22-5	1.13	11.40	8.79	74.6	NR
2.	QN55B 10-6221 SB-17-16	1.14	11.93	7.96	63.2	NR
3.	QN55C 10-6223 SB-21-16	1.12	12.84	9.55	71.9	NR
4.	QN55D 10-6224 SB-16-7	1.13	11.24	8.49	72.8	NR
5.	QN55E 10-6225 SB-16-16	1.13	11.47	7.78	64.3	NR
6.	QN55F 10-6226 SB-23-4	1.13	11.76	7.62	61.1	NR
7.	QN55G 10-6227 SB-23-8	1.11	11.32	8.79	75.2	NR
8.	QN55H 10-6228 SB-23-16	1.12	11.48	7.71	63.6	NR
9.	QN55I 10-6229 SB-22-8	1.13	11.24	8.03	68.2	NR
10.	QN55J 10-6230 SB-22-15	1.14	11.93	9.59	78.3	NR
11.	QN55K 10-6231 MW-5-16	1.11	11.43	10.28	88.9	NR

Extractions Total Solids-extts
Data By: Pat Dugan
Created: 3/17/10

Worklist: 8075
Analyst: PD
Comments:

Oven ID: ϕ15

Balance ID: 21754520

Samples In: Date: ~~3-16~~ 3-17-10 PD Time: ϕ951 Temp: 100 Analyst: PD

Samples Out: Date: 3/18/10 Time: 6:30 Temp: _____ Analyst: ~~PD~~ 3-17-10 PD RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QN55A 10-6220 SB-22-5	1.13g	11.46g		8.79	NR
2.	QN55B 10-6221 SB-17-16	1.14g	11.93g		7.96	NR
3.	QN55C 10-6223 SB-21-16	1.12g	12.84g		9.55	NR
4.	QN55D 10-6224 SB-16-7	1.13g	11.24g		8.49	NR
5.	QN55E 10-6225 SB-16-16	1.13g	11.47g		7.78	NR
6.	QN55F 10-6226 SB-23-4	1.13g	11.76g		7.62	NR
7.	QN55G 10-6227 SB-23-8	1.11g	11.32g		8.79	NR
8.	QN55H 10-6228 SB-23-16	1.12g	11.48g		7.71	NR
9.	QN55I 10-6229 SB-22-8	1.13g	11.24g		8.03	NR
10.	QN55J 10-6230 SB-22-15	1.14g	11.93g		9.59	NR
11.	QN55K 10-6231 MW-5-16	1.11g	11.43g		10.28	NR

Solids Data Entry Report Checked by: MH Date: 3/19/10
Date: 03/19/10 Data Analyst: KM

Solids Determination performed on 03/18/10 by KM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
QN55	A	SB-22-5	0.964	10.389	8.142	76.16
QN55	F	SB-23-4	0.933	10.677	7.522	67.62
QN55	I	SB-22-8	0.998	10.501	7.209	65.36
QN55	J	SB-22-15	1.001	10.397	9.281	88.12

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section Metals

Oven Identification: 07 **Balance ID:** B043133

Samples in Oven: Date: 3/18/10 Time: 1350 Temp: 102°C Analyst: KM

Removed from Oven: Date: 3/19/10 Time: 1005 Temp: 102°C Analyst: KM

Source of Total Solids Data If From A Different Lab: —

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
QN53 D	0.970	10.779	9.018	—	✓
" J	0.942	10.257	8.551	—	✓
" K	0.980	10.690	9.831	—	✓
" O	0.973	10.063	8.242	—	✓
" P	0.982	10.339	7.919	—	✓
" R	0.987	10.295	7.748	—	✓
" S	0.984	10.183	7.743	—	✓
QN55 A	0.964	10.389	8.142	—	✓
" F	0.933	10.677	7.522	—	✓
" I	0.998	10.501	7.209	—	✓
" J	1.001	10.397	9.281	—	✓
QN91 C	0.950	10.049	2.286	—	✓
		KM	3/18/10		

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

QN55 : 00124

BETX/TPHG Total Solids-betxts
Data By: Monica Herbert
Created: 3/25/10

Worklist: 785
Analyst: MH
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1.	QN55A 10-6220			*	74.6
2.	QN55B 10-6221			*	63.2
3.	QN55C 10-6223			*	71.9
4.	QN55D 10-6224			*	72.8
5.	QN55E 10-6225			*	64.3
6.	QN55F 10-6226			*	61.1
7.	QN55G 10-6227			*	75.2
8.	QN55H 10-6228			*	63.6
9.	QN55I 10-6229			*	68.2
10.	QN55J 10-6230			*	78.3
11.	QN55K 10-6231			*	88.9

Worklist ID: 785 Page: 1
* - BETX TS Copied From VOA TS
% - BETX TS Copied From Metals TS
$ - BETX TS Copied From Extraction TS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 29, 2010

Glen Vedera
SAIC
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

RE: Project: Blaine, 188714
ARI Job No: QO08

Dear Glen:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of the analyses are discussed in the Case Narrative.

An electronic copy of this data and associated raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com

Enclosures

cc: eFile QO08

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody
Documentation

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QO08

prepared
by

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: Q088	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: SAIC	Phone: 206 871 4691	Date: 3/12/10	Ice Present? yes
Client Contact: Glen Vedera		No. of Coolers: 1	Cooler Temps: 0.9
Client Project Name: Blaine			
Client Project #: 488714	Samplers:		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX/MTBE 8260 –	Naphth-tox	Naphth-tox WSI Limited	PCB 8082	Organohal TS 8260C	Lead 6010B			Notes/Comments
TB-031210-3	3/12/10	0800	W	2	X	X							
SB-24-5	3/12/10	0910	Soil	7	/	/	/		/				
SB-25-5	3/12/10	0915	Soil	7	/	/	/		/				
SB-25-16	3/12/10	0930	Soil	7	/	/	/		/				
SB-24-8	3/12/10	1000	Soil	7	/	/	/		/				
SB-24-16	3/12/10	1010	Soil	7	/	/	/		/				
SB-26-5	3/12/10	1100	Soil	7	/	/	/		/				
SB-26-14	3/12/10	1115	Soil	7	/	/	/		/				
SB-28-5	3/12/10	1330	Soil	7	/	/	/		/				
SB-28-16	3/12/10	1405	Soil	7	/	/	/		/				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Julie Wood	Printed Name: Rich Hudson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/15/10 1515	Date & Time: 3/15/10 1515	Date & Time:	Date & Time:

0088 : 0000 03

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SAIC Project Name: Blaine

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: QOO8S Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	9	
If cooler temperature is out of compliance fill out form 00070F	Temp Gun ID#: 90941619	

Cooler Accepted by: _____ Date: 3/15/10 Time: 1615

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		(YES)	NO
What kind of packing material was used? ...	(Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	(NO)
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	3/9/10	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JP Date: 3/16/10 Time: 1015

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Case Narrative

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QO08

prepared
by

Analytical Resources, Inc.

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: SAIC
Project: Blaine, 188714
ARI Job No.: QO08

Sample Receipt

Nine soil samples and a trip blank were received on March 15, 2010, under ARI job QO08. The cooler temperature measured by IR thermometer following ARI SOP was 0.9°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile by SW8260C

The samples were analyzed within the recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements. Internal standard areas

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

TPH-Gx by NWTPH

The samples were analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Acid/Silica Cleaned TPH-Dx by NWTPH

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

3/6/2010

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1662-3	ABN	100/150	MEOH	10/08/10
B	1633-3	SIM PNA	15/75	MEOH	08/12/10
C*	1559-1	SIM ABN	25/37.5	MEOH	03/13/10
D	1689-2	LOW PCB	0.2	ACETONE	12/29/10
E	1661-2	HERB	62.5	MEOH	10/02/10
F	1683-3	PCP	12.5	ACETONE	12/09/10
G*	1534-1	1,4DIOXANE	100	MEOH	02/20/10
H	1594-1	OP-PEST	25	MEOH	04/01/10
I	1634-1	LOW S. PNA	1.5	MEOH	08/12/10
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1682-1	EPH	1500	MECL2	09/17/10
N	1689-3	PCB	2	ACETONE	12/29/10
O	1699-1	TPH	450	MECL2	07/02/10
P	1666-3	HCID	2250	MECL2	05/06/10
Q	1620-2	EDB	1	MEOH	06/22/10
R	1615-1	RESIN ACID	250	ACETONE	06/17/10
S#	1568-5	PBDE	.25	MEOH	NA
T	1674-2	ALKYL PNA	10	MEOH	07/30/10
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					
#project specific					
Y					
Z					

Q008 : 00010

LCS SOLUTIONS

3/6/2010

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1686-1	PCB 1660	20	ACETONE	09/01/10
2#	1472-3	BCOC PEST	10	ACETONE	NA
3	1620-4	PEST	02/04/20	ACETONE	06/26/10
4	1667-1	LOW PEST	0.2/0.4/2	ACETONE	06/26/10
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1705-1	ABN	100	ACETONE	07/01/10
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1698-2	ABN ACID	100/200	MECL2	07/14/10
11	1642-2	TPHD	15000	ACETONE	09/07/10
12	1698-1	ABN BASE	200	MEOH	07/24/10
13	1613-1	LOW PCB	2	ACETONE	06/08/10
14*	1547-1	LOW ABN ACID	10/20	MEOH	04/10/10
15*	1591-3	SIM PNA	15/75	MEOH	08/28/10
16	1602-3	DIOXANE	100	MEOH	03/20/10
17	1644-1	1248 PCB	10	ACETONE	09/10/10
18*	1591-4	LOW SIM PNA	1.5	ACETONE	08/28/10
19	1685-3	AK103	7500	ACETONE	09/03/10
20	1682-4	PNA	100	ACETONE	12/04/10
21	1593-3	SKY/BHT	100	MEOH	03/31/10
22	1702-4	HERB	12.5/12500	MEOH	04/17/10
23*	1505-1	LW ABN BASE	20	MEOH	03/20/10
24	1696-1	LOW ABN	10	ACETONE	01/13/11
25#	1481-1	DIPHENYL	100	MEOH	NA
26	1702-5	OP-PEST	25	MEOH	03/31/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1684-1	ADD. PEST	4	ACETONE	03/25/10
29#	1496-3	DECANES	100	MEOH	NA
30	1620-1	EDB/DBCP	0.2	MEOH	06/22/10

Q008 : 0011

LCS SOLUTIONS

3/6/2010

31	1596-1	TERPINEOL	100	MEOH	04/03/10
32	1619-3	GUAIACOL	50-200	ACETONE	04/30/10
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
50	1617-1	FULL RESIN	250	ACETONE	06/17/10
51	1696-3	DDTS	2.5	ACETONE	06/03/10
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1701-2	PBDE	0.5	ACETONE	02/10/11
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

Q008 : 00012

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80** - **120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80** - **120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80** - **120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80** - **120**	75 - 130
Trichloroethene	**80** - **120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80** - **120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

Q008 : 00013

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

Q008 : 00014

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

Q008 : 00015

Analytical Resources,Incorporated
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Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	Aqueous Samples		Soil / Sediment Samples	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

0008 : 00016

Analytical Resources,Incorporated
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Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water	Soil	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [3]				
Diesel	-- - --	56 - 103	55 - 104	75 - 125
Diesel with Acid & Silica Clean-up	-- - --	43 - 100	54 - 96	(4)
Diesel with Silica Clean-up	-- --	43 - 100	54 - 96	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-- - --	57 - 120	58 - 121	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-- - --	51 - 120	63 - 115	(4)
o-Terphenyl Silica Clean-up		51 - 120	63 - 115	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	35 - 131	53 - 118	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-- - --	41 - 121	49 - 120	(4)
o-Terphenyl with Silica Clean-up		41 - 121	49 - 120	50 - 150

1. Control Limits calculated using all data generated 1/1/08 through 12/31/08
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
4. Alaska State UST Methods do not allow acid cleanup of sample extracts.

Q008 : 00017

Analytical Resources,Incorporated
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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	OC17	
Sample Matrix	Soil/Sediment	
Sample Weight/Volume	5.0 g	
Spike Level*	2.0 µg/kg	
Preparation Method	5030B	
ARI Analytical SOP	700S	Soil/Sediment
Instrument	Finn 5	Reporting
Date Analyzed	12/5/08	Limit
Reporting Units	µg/kg	µg/kg
Analyte	**MDL**	**RL**
Dichlorodifluoromethane	0.363	1.0
Chloromethane	0.094	1.0
Vinyl Chloride	0.157	1.0
Bromomethane	0.400	1.0
Chloroethane	0.436	1.0
Trichlorofluoromethane	0.384	1.0
Acrolein*	1.104	50.0
Acetone*	2.221	5.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.383	2.0
1,1-Dichloroethene	0.184	1.0
Bromoethane	0.516	2.0
Iodomethane	0.304	1.0
Methylene Chloride	0.706	2.0
Carbon Disulfide	0.352	1.0
Acrylonitrile	0.334	5.0
Methyl-t-butyl ether (MTBE)	0.166	1.0
trans-1,2-Dichloroethene	0.208	1.0
Vinyl Acetate	0.326	5.0
1,1-Dichloroethane	0.129	1.0
2-Butanone*	0.960	5.0
2,2-Dichloropropane	0.144	1.0
cis-1,2-Dichloroethene	0.110	1.0
Chloroform	0.347	1.0
Bromochloromethane	0.240	1.0
1,1,1-Trichloroethane	0.123	1.0
1,1-Dichloropropene	0.165	1.0
Carbon Tetrachloride	0.396	1.0
1,2-Dichloroethane	0.351	1.0

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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
Benzene	0.218	**1.0**
Trichloroethene	0.510	**1.0**
1,2-Dichloropropane	0.357	**1.0**
Bromodichloromethane	0.481	**1.0**
Dibromomethane	0.265	**1.0**
2-Chloroethyl Vinyl Ether	0.453	**5.0**
4-Methyl-2-Pentanone*	0.952	**5.0**
cis-1,3-Dichloropropene	0.199	**1.0**
Toluene	0.225	**1.0**
trans-1,3-Dichloropropene	0.183	**1.0**
1,1,2-Trichloroethane	0.253	**1.0**
1,2-Dibromoethane	0.177	**1.0**
2-Hexanone*	0.823	**5.0**
1,3-Dichloropropane	0.125	**1.0**
Tetrachloroethene	0.400	**1.0**
Chlorodibromomethane	0.295	**1.0**
Chlorobenzene	0.098	**1.0**
1,1,1,2-Tetrachloroethane	0.170	**1.0**
Ethyl Benzene	0.087	**1.0**
m,p-Xylene	0.263	**1.0**
o-Xylene	0.205	**1.0**
Styrene	0.230	**1.0**
Bromoform	0.490	**1.0**
Isopropyl Benzene	0.173	**1.0**
1,1,2,2-Tetrachloroethane	0.218	**1.0**
1,2,3-Trichloropropane	0.483	**2.0**
trans-1,4-Dichloro-2-Butene	0.287	**5.0**
n-Propyl Benzene	0.144	**1.0**
Bromobenzene	0.166	**1.0**

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MDL and RL Summary GC-MS – VOA Analysis of Soil & Sediment (EPA Method 8260C)

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File	**OC17**	
Sample Matrix	**Soil/Sediment**	
Sample Weight/Volume	**5.0 g**	
Spike Level*	**2.0 µg/kg**	
Preparation Method	**5030B**	
ARI Analytical SOP	**700S**	**Soil/Sediment**
Instrument	**Finn 5**	**Reporting**
Date Analyzed	**12/5/08**	**Limit**
Reporting Units	**µg/kg**	**µg/kg**
Analyte	**MDL**	**RL**
1,3,5-Trimethylbenzene	0.164	**1.0**
2-Chlorotoluene	0.247	**1.0**
4-Chlorotoluene	0.066	**1.0**
t-Butylbenzene	0.115	**1.0**
1,2,4-Trimethylbenzene	0.114	**1.0**
s-Butylbenzene	0.179	**1.0**
4-Isopropyl Toluene	0.137	**1.0**
1,3-Dichlorobenzene	0.134	**1.0**
1,4-Dichlorobenzene	0.238	**1.0**
n-Butylbenzene	0.233	**1.0**
1,2-Dichlorobenzene	0.045	**1.0**
1,2-Dibromo-3-Chloropropane	0.600	**5.0**
1,2,4-Trichlorobenzene	0.270	**5.0**
Hexachloro-1,3-Butadiene	0.192	**5.0**
Naphthalene	0.097	**5.0**
1,2,3-Trichlorobenzene	0.179	**5.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.
* Compounds noted labeled with an * are spiked at higher concentrations.

MDL Verifications			
ARI Data File	**Date**	**Spike Level**	**Recovery**
OC17	12/5/08	0.5 µg/L	41 – 137 %

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MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Soil

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**50**
NW-TPH-D C_{12}-C_{24}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
AK102 C_{10}-C_{25}	2/6/09	OE33	Microwave	10.0 mg/kg	10 g / 1.0 mL	0.297	**5.0**
JP-4 Toluene-C14	2/13/07	JN65	Microwave	20 mg/kg	10g / 2.0 mL	3.19	**10.0**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/kg	RL[2] mg/kg
NWTPH-HCID	(3)	(3)	(3)	(3)	(3)	(3)	**100**
NW-TPH-Dext C_{24}-C_{38}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.694	**10.0**
AK103 C_{25}-C_{36}	2/6/09	OE33	Microwave	10 mg/kg	10 g / 1.0 mL	0.859	**10.0**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**% Recovery**
NWTPH-Dext	5.0 mg/kg	Microwave	2/6/09	OE33	TPH-Dext = 104
AK103	5.0 mg/kg	Microwave	2/6/09	OE33	AK103 = 120
NWTPH-D / AK102	2.5 mg/kg	Microwave	2/6/09	OE33	NWTPH-D = 114, AK102 = 130
JP-4	20 mg/kg	Sonication	2/13/07	JN65	88

(1) - MDL studies performed on Instrument FID-3A.
(2) - RL based on extraction of 10 grams sample (dry weight).
(3) – MDL studies are not performed for HCID analyses.The reporting limits are specified in the method.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

MDL and RL Summary for Gasoline Range Organics Soil Samples – Methanol Extraction Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Sample Prep	MDL Spike Level mg/kg	MDL[1] mg/kg	MDL Date	RL mg/kg
NWTPH-G Toluene – Naphthalene	10g soil in 5 mL Methanol 500 mL FEV	10	2.39	1/6/10	**5**
8015B 2-Methylpentane – 1,2,4-Trimethylbenzene	10g soil in 5 mL Methanol 500 mL FEV	10	2.87	1/6/10	**5**
WA-TPH-G Toluene – nC_{12}	10g soil in 5 mL Methanol 500 mL FEV	10	2.41	1/6/10	**5**
AK101[2] nC_6 – nC_{10}	10g soil in 5 mL Methanol 500 mL FEV	10	2.95	1/6/10	**5**

MDL Verification

ARI Data File	Instrument	Extraction	Analysis Date	Spike Level	Gas Spike Average Recovery
QD23	PID3	MeOH	1/6/10	2.5 mg/kg	120 - 136%

(1) - ARI data file = QD23
(2) - Samples for AK101 analysis of soil are preserved with Methanol in the field.
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
The RL is based on the lowest concentration calibration standard.

Data Summary Package

prepared
for

Science App. International Corp

Project: Blaine, 188714

ARI JOB NO: QO08

prepared
by

Analytical Resources, Inc.

VOLATILE ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
Page 1 of 1 **TB-031210-3**

Lab Sample ID: QO08A
LIMS ID: 10-6574
Matrix: Water
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/23/10 16:00

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	86.9%
Bromofluorobenzene	81.5%
d4-1,2-Dichlorobenzene	105%

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ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-24-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08B
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/23/10 16:34

Sample Amount: 3.90 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.3**	**5.6**	
108-88-3	**Toluene**	**1.3**	**2.2**	
100-41-4	**Ethylbenzene**	**1.3**	**44**	
179601-23-1	**m,p-Xylene**	**1.3**	**25**	
95-47-6	**o-Xylene**	**1.3**	**11**	
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	114%
d8-Toluene	87.9%
Bromofluorobenzene	85.8%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-25-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08C
LIMS ID: 10-6576
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 13:13

Sample Amount: 3.15 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 29.9%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	< 1.6	U
108-88-3	**Toluene**	**1.6**	**1.0**	**J**
100-41-4	Ethylbenzene	1.6	< 1.6	U
179601-23-1	m,p-Xylene	1.6	< 1.6	U
95-47-6	o-Xylene	1.6	< 1.6	U
1634-04-4	Methyl tert-Butyl Ether	1.6	< 1.6	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	109%
d8-Toluene	85.9%
Bromofluorobenzene	85.5%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-25-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08D
LIMS ID: 10-6577
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 13:46

Sample Amount: 6.13 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 9.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.8	< 0.8	U
108-88-3	Toluene	0.8	< 0.8	U
100-41-4	Ethylbenzene	0.8	< 0.8	U
179601-23-1	m,p-Xylene	0.8	< 0.8	U
95-47-6	o-Xylene	0.8	< 0.8	U
1634-04-4	Methyl tert-Butyl Ether	0.8	< 0.8	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	117%
d8-Toluene	87.2%
Bromofluorobenzene	83.7%
d4-1,2-Dichlorobenzene	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-24-8**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08E
LIMS ID: 10-6578
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 14:12

Sample Amount: 4.03 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 30.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.2**	**22**	
108-88-3	**Toluene**	**1.2**	**10**	
100-41-4	**Ethylbenzene**	**1.2**	**180**	**ES**
179601-23-1	**m,p-Xylene**	**1.2**	**240**	**ES**
95-47-6	**o-Xylene**	**1.2**	**58**	
1634-04-4	Methyl tert-Butyl Ether	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	126%
d8-Toluene	87.4%
Bromofluorobenzene	85.0%
d4-1,2-Dichlorobenzene	108%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-24-8**
Page 1 of 1 **REANALYSIS**

Lab Sample ID: QO08E
LIMS ID: 10-6578
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 19:34

Sample Amount: 56.7 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 30.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**88**	**50**	**J**
108-88-3	Toluene	88	< 88	U
100-41-4	**Ethylbenzene**	**88**	**540**	
179601-23-1	**m,p-Xylene**	**88**	**250**	
95-47-6	o-Xylene	88	< 88	U
1634-04-4	Methyl tert-Butyl Ether	88	< 88	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	93.2%
d8-Toluene	85.1%
Bromofluorobenzene	83.6%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-24-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08F
LIMS ID: 10-6579
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 14:39

Sample Amount: 5.31 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 7.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	0.9	< 0.9	U
108-88-3	Toluene	0.9	< 0.9	U
100-41-4	Ethylbenzene	0.9	< 0.9	U
179601-23-1	m,p-Xylene	0.9	< 0.9	U
95-47-6	o-Xylene	0.9	< 0.9	U
1634-04-4	Methyl tert-Butyl Ether	0.9	< 0.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	111%
d8-Toluene	86.0%
Bromofluorobenzene	83.9%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-26-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08G
LIMS ID: 10-6580
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 15:06

Sample Amount: 3.89 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 29.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	113%
d8-Toluene	87.4%
Bromofluorobenzene	84.8%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-26-14**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08H
LIMS ID: 10-6581
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 15:33

Sample Amount: 2.92 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 32.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	< 1.7	U
108-88-3	Toluene	1.7	< 1.7	U
100-41-4	Ethylbenzene	1.7	< 1.7	U
179601-23-1	m,p-Xylene	1.7	< 1.7	U
95-47-6	o-Xylene	1.7	< 1.7	U
1634-04-4	Methyl tert-Butyl Ether	1.7	< 1.7	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	117%
d8-Toluene	88.4%
Bromofluorobenzene	84.8%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-28-5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08I
LIMS ID: 10-6582
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 16:00

Sample Amount: 3.86 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 28.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U
1634-04-4	Methyl tert-Butyl Ether	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	121%
d8-Toluene	88.8%
Bromofluorobenzene	85.8%
d4-1,2-Dichlorobenzene	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SB-28-16**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QO08J
LIMS ID: 10-6583
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 16:27

Sample Amount: 2.99 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 35.7%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	< 1.7	U
108-88-3	Toluene	1.7	< 1.7	U
100-41-4	Ethylbenzene	1.7	< 1.7	U
179601-23-1	m,p-Xylene	1.7	< 1.7	U
95-47-6	o-Xylene	1.7	< 1.7	U
1634-04-4	**Methyl tert-Butyl Ether**	**1.7**	**2.0**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	118%
d8-Toluene	88.5%
Bromofluorobenzene	86.6%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QO08-Science App. International Cor
Project: Blaine
188714

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
QO08A	Trip Blank	5	103%	86.9%	81.5%	105%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	83-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-6574 to 10-6574

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-032310	Method Blank	Low	101%	87.1%	80.7%	102%	0
LCS-032310	Lab Control	Low	92.4%	85.1%	86.0%	102%	0
LCSD-032310	Lab Control Dup	Low	90.8%	84.1%	85.4%	102%	0
QO08B	SB-24-5	Low	114%	87.9%	85.8%	105%	0
MB-032510	Method Blank	Low	97.3%	86.2%	82.5%	102%	0
LCS-032510	Lab Control	Low	93.3%	85.7%	87.1%	101%	0
LCSD-032510	Lab Control Dup	Low	98.4%	85.5%	86.8%	103%	0
QO08C	SB-25-5	Low	109%	85.9%	85.5%	104%	0
QO08D	SB-25-16	Low	117%	87.2%	83.7%	107%	0
MB-032210	Method Blank	Med	99.5%	87.4%	82.6%	103%	0
LCS-032210	Lab Control	Med	92.6%	83.7%	85.7%	101%	0
LCSD-032210	Lab Control Dup	Med	92.5%	84.9%	84.4%	102%	0
QO08E	SB-24-8	Low	126%	87.4%	85.0%	108%	0
QO08ERE	SB-24-8	Med	93.2%	85.1%	83.6%	102%	0
QO08F	SB-24-16	Low	111%	86.0%	83.9%	106%	0
QO08G	SB-26-5	Low	113%	87.4%	84.8%	106%	0
QO08H	SB-26-14	Low	117%	88.4%	84.8%	106%	0
QO08I	SB-28-5	Low	121%	88.8%	85.8%	107%	0
QO08J	SB-28-16	Low	118%	88.5%	86.6%	106%	0

SW8260C	LCS/MB LIMITS Low	LCS/MB LIMITS Med	QC LIMITS Low	QC LIMITS Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-6575 to 10-6583

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032210**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032210
LIMS ID: 10-6578
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/22/10 10:38
LCSD: 03/22/10 11:16

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2370	2500	94.8%	2490	2500	99.6%	4.9%
Toluene	2300	2500	92.0%	2480	2500	99.2%	7.5%
Ethylbenzene	2570	2500	103%	2630	2500	105%	2.3%
m,p-Xylene	4990	5000	99.8%	5160	5000	103%	3.3%
o-Xylene	2400	2500	96.0%	2440	2500	97.6%	1.7%
Methyl tert-Butyl Ether	5020	5000	100%	4980	5000	99.6%	0.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	92.6%	92.5%
d8-Toluene	83.7%	84.9%
Bromofluorobenzene	85.7%	84.4%
d4-1,2-Dichlorobenzene	101%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032310**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032310
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/23/10 09:52
LCSD: 03/23/10 10:26

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	52.9	50.0	106%	50.9	50.0	102%	3.9%
Toluene	52.4	50.0	105%	49.1	50.0	98.2%	6.5%
Ethylbenzene	57.3	50.0	115%	55.6	50.0	111%	3.0%
m,p-Xylene	112	100	112%	107	100	107%	4.6%
o-Xylene	53.3	50.0	107%	51.0	50.0	102%	4.4%
Methyl tert-Butyl Ether	101	100	101%	99.2	100	99.2%	1.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	92.4%	90.8%
d8-Toluene	85.1%	84.1%
Bromofluorobenzene	86.0%	85.4%
d4-1,2-Dichlorobenzene	102%	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032510**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032510
LIMS ID: 10-6576
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 03/25/10 11:13
LCSD: 03/25/10 11:50

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	48.4	50.0	96.8%	50.2	50.0	100%	3.7%
Toluene	47.6	50.0	95.2%	49.2	50.0	98.4%	3.3%
Ethylbenzene	51.8	50.0	104%	52.4	50.0	105%	1.2%
m,p-Xylene	101	100	101%	101	100	101%	0.0%
o-Xylene	48.0	50.0	96.0%	48.1	50.0	96.2%	0.2%
Methyl tert-Butyl Ether	97.6	100	97.6%	99.6	100	99.6%	2.0%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	93.3%	98.4%
d8-Toluene	85.7%	85.5%
Bromofluorobenzene	87.1%	86.8%
d4-1,2-Dichlorobenzene	101%	103%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0322

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QO08

Project: BLAINE

Lab File ID: MB0322

Lab Sample ID: MB0322

Date Analyzed: 03/22/10

Time Analyzed: 1143

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0322	LCS0322	LCS0322	1038
02	LCS0322	LCS0322	LCS0322A	1116
03	SB-24-8	QO08E	QO08E	1934
04				
05				
06				
07				
08				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032210**
 METHOD BLANK

Lab Sample ID: MB-032210
LIMS ID: 10-6578
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/22/10 11:43

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U
1634-04-4	Methyl tert-Butyl Ether	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	87.4%
Bromofluorobenzene	82.6%
d4-1,2-Dichlorobenzene	103%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0323

Lab Name: ANALYTICAL RESOURCES, INC

Client: SAIC

ARI Job No: QO08

Project: BLAINE

Lab File ID: MB0323

Lab Sample ID: MB0323

Date Analyzed: 03/23/10

Time Analyzed: 1053

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0323	LCS0323	LCS0323	0952
02	LCS0323	LCS0323	LCS0323A	1026
03	TRIP BLANK	QO08A	QO08A	1600
04	SB-24-5	QO08B	QO08B2	1634
05				
06				
07				
08				
09				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032310**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-032310
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/23/10 10:53

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	87.1%
Bromofluorobenzene	80.7%
d4-1,2-Dichlorobenzene	102%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0325

Lab Name: ANALYTICAL RESOURCES, INC
Client: SAIC

ARI Job No: QO08
Project: BLAINE

Lab File ID: MB0325
Lab Sample ID: MB0325

Date Analyzed: 03/25/10
Time Analyzed: 1217

Instrument ID: FINN5
Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0325	LCS0325	LCS0325	1113
02	LCS0325	LCS0325	LCS0325A	1150
03	SB-25-5	QO08C	QO08C2	1313
04	SB-25-16	QO08D	QO08D2	1346
05	SB-24-8	QO08E	QO08E2	1412
06	SB-24-16	QO08F	QO08F2	1439
07	SB-26-5	QO08G	QO08G2	1506
08	SB-26-14	QO08H	QO08H2	1533
09	SB-28-5	QO08I	QO08I	1600
10	SB-28-16	QO08J	QO08J	1627
11				
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COMMENTS:

FORM IV VOA

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032510**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-032510
LIMS ID: 10-6576
Matrix: Soil
Data Release Authorized:
Reported: 03/26/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 03/25/10 12:17

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
1634-04-4	Methyl tert-Butyl Ether	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	97.3%
d8-Toluene	86.2%
Bromofluorobenzene	82.5%
d4-1,2-Dichlorobenzene	102%

TPHG ANALYSIS

Q008 : 00047

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/25/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/12/10
Date Received: 03/15/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result
MB-032410	Method Blank	03/24/10	Dry	Gasoline	< 5.0 U
10-6575		PID3		HC ID	---
				Trifluorotoluene	90.2%
				Bromobenzene	91.2%
QO08B	SB-24-5	03/24/10	Dry	**Gasoline**	**12**
10-6575		PID3		HC ID	GAS
				Trifluorotoluene	104%
				Bromobenzene	98.9%
QO08C	SB-25-5	03/24/10	Dry	Gasoline	< 9.7 U
10-6576		PID3		HC ID	---
				Trifluorotoluene	100%
				Bromobenzene	96.4%
QO08D	SB-25-16	03/24/10	Dry	Gasoline	< 5.3 U
10-6577		PID3		HC ID	---
				Trifluorotoluene	106%
				Bromobenzene	100%
QO08E	SB-24-8	03/24/10	Dry	**Gasoline**	**23**
10-6578		PID3		HC ID	GAS
				Trifluorotoluene	104%
				Bromobenzene	99.0%
QO08F	SB-24-16	03/24/10	Dry	Gasoline	< 4.7 U
10-6579		PID3		HC ID	---
				Trifluorotoluene	106%
				Bromobenzene	104%
QO08G	SB-26-5	03/24/10	Dry	Gasoline	< 7.3 U
10-6580		PID3		HC ID	---
				Trifluorotoluene	103%
				Bromobenzene	101%
QO08H	SB-26-14	03/24/10	Dry	Gasoline	< 10 U
10-6581		PID3		HC ID	---
				Trifluorotoluene	102%
				Bromobenzene	99.0%
QO08I	SB-28-5	03/24/10	Dry	Gasoline	< 9.1 U
10-6582		PID3		HC ID	---
				Trifluorotoluene	104%
				Bromobenzene	102%
QO08J	SB-28-16	03/24/10	Dry	Gasoline	< 11 U
10-6583		PID3		HC ID	---
				Trifluorotoluene	104%
				Bromobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Soil

Data Release Authorized:
Reported: 03/25/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/12/10
Date Received: 03/15/10

ARI ID	Client ID	Analysis Date	Basis	Range	Result

Gasoline values reported in mg/kg (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized:
Reported: 03/25/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: 03/12/10
Date Received: 03/15/10

ARI ID	Client ID	Analysis Date	DL	Range	Result
QO08A	Trip Blank	03/24/10	1.0	Gasoline	< 0.25 U
10-6574		PID3		HC ID	---
				Trifluorotoluene	94.6%
				Bromobenzene	95.0%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

ANALYTICAL RESOURCES INCORPORATED

TPHG SOIL SURROGATE RECOVERY SUMMARY

ARI Job: QO08
Matrix: Soil

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	BFB	TFT	BBZ	TOT OUT
MB-032410	NA	90.2%	91.2%	0
LCS-032410	NA	94.3%	94.4%	0
LCSD-032410	NA	94.4%	93.9%	0
SB-24-5	NA	104%	98.9%	0
SB-25-5	NA	100%	96.4%	0
SB-25-16	NA	106%	100%	0
SB-24-8	NA	104%	99.0%	0
SB-24-16	NA	106%	104%	0
SB-26-5	NA	103%	101%	0
SB-26-14	NA	102%	99.0%	0
SB-28-5	NA	104%	102%	0
SB-28-16	NA	104%	102%	0

	LCS/MB LIMITS	QC LIMITS
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(TFT) = Trifluorotoluene	(80-120)	(66-123)
(BBZ) = Bromobenzene	(80-120)	(62-130)

Log Number Range: 10-6575 to 10-6583

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: QO08
Matrix: Water

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714

Client ID	TFT	BBZ	TOT OUT
Trip Blank	94.6%	95.0%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 10-6574 to 10-6574

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032410
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032410
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/25/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/24/10 05:55
LCSD: 03/24/10 06:20
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	51.0	50.0	102%	47.8	50.0	95.6%	6.5%

Reported in mg/kg (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	94.3%	94.4%
Bromobenzene	94.4%	93.9%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB0324S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QO08 Project No.: BLAINE

Date Analyzed : 03/24/10 Matrix: SOIL

Time Analyzed : 0644 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0324S1	LCS0324	03/24/10
02	LCSD0324S1	LCSD0324	03/24/10
03	SB-24-5	QO08B	03/24/10
04	SB-25-5	QO08C	03/24/10
05	SB-25-16	QO08D	03/24/10
06	SB-24-8	QO08E	03/24/10
07	SB-24-16	QO08F	03/24/10
08	SB-26-5	QO08G	03/24/10
09	SB-26-14	QO08H	03/24/10
10	SB-28-5	QO08I	03/24/10
11	SB-28-16	QO08J	03/24/10
12			
13			
14			
15			
16			
17			
18			

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.: MB0324S1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QO08 Project No.: BLAINE

Date Analyzed : 03/24/10 Matrix: WATER

Time Analyzed : 0644 Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0324S1	LCS0324	03/24/10
02	LCSD0324S1	LCSD0324	03/24/10
03	TRIP BLANK	QO08A	03/24/10
04			

TPHD ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Soil

QC Report No: QO08-Science App. Internation
Project: Blaine
188714

Data Release Authorized:
Reported: 03/22/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-031710	Method Blank	03/17/10	03/19/10	1.00	Diesel	5.0	< 5.0 U
10-6575	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		88.9%
QO08B	SB-24-5	03/17/10	03/19/10	1.00	Diesel	6.4	< 6.4 U
10-6575	HC ID: ---		FID4A	1.0	Motor Oil	13	< 13 U
					o-Terphenyl		74.2%
QO08C	SB-25-5	03/17/10	03/19/10	1.00	**Diesel**	**6.9**	**11**
10-6576	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil**	**14**	**68**
					o-Terphenyl		78.0%
QO08D	SB-25-16	03/17/10	03/19/10	1.00	Diesel	5.2	< 5.2 U
10-6577	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		80.5%
QO08E	SB-24-8	03/17/10	03/19/10	1.00	Diesel	7.0	< 7.0 U
10-6578	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		79.0%
QO08F	SB-24-16	03/17/10	03/19/10	1.00	Diesel	5.2	< 5.2 U
10-6579	HC ID: ---		FID4A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		87.1%
QO08G	SB-26-5	03/17/10	03/19/10	1.00	Diesel	6.7	< 6.7 U
10-6580	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		58.7%
QO08H	SB-26-14	03/17/10	03/19/10	1.00	Diesel	6.8	< 6.8 U
10-6581	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		75.2%
QO08I	SB-28-5	03/17/10	03/19/10	1.00	Diesel	6.8	< 6.8 U
10-6582	HC ID: ---		FID4A	1.0	Motor Oil	14	< 14 U
					o-Terphenyl		70.0%
QO08J	SB-28-16	03/17/10	03/19/10	1.00	Diesel	7.3	< 7.3 U
10-6583	HC ID: ---		FID4A	1.0	Motor Oil	15	< 15 U
					o-Terphenyl		79.1%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714

Client ID	OTER	TOT OUT
MB-031710	88.9%	0
LCS-031710	95.2%	0
LCSD-031710	97.2%	0
SB-24-5	74.2%	0
SB-24-5 MS	80.4%	0
SB-24-5 MSD	84.6%	0
SB-25-5	78.0%	0
SB-25-16	80.5%	0
SB-24-8	79.0%	0
SB-24-16	87.1%	0
SB-26-5	58.7%	0
SB-26-14	75.2%	0
SB-28-5	70.0%	0
SB-28-16	79.1%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(63-115)	(49-120)

Prep Method: SW3546
Log Number Range: 10-6575 to 10-6583

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: SB-24-5**
Page 1 of 1 **MS/MSD**

Lab Sample ID: QO08B
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Date Extracted MS/MSD: 03/17/10

Date Analyzed MS: 03/19/10 11:31
MSD: 03/19/10 11:59
Instrument/Analyst MS: FID/MS
MSD: FID/MS

Sample Amount MS: 7.83 g-dry-wt
MSD: 7.70 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.0
MSD: 1.0
Percent Moisture: 24.3%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 6.4	123	192	64.1%	130	195	66.7%	5.5%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	80.4%	84.6%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-031710**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-031710
LIMS ID: 10-6575
Matrix: Soil
Data Release Authorized:
Reported: 03/22/10

QC Report No: QO08-Science App. International Corp
Project: Blaine
188714
Date Sampled: 03/12/10
Date Received: 03/15/10

Date Extracted LCS/LCSD: 03/17/10
Date Analyzed LCS: 03/19/10 09:12
LCSD: 03/19/10 09:40
Instrument/Analyst LCS: FID/MS
LCSD: FID/MS

Sample Amount LCS: 10.0 g
LCSD: 10.0 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.0
LCSD: 1.0

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	117	150	78.0%	113	150	75.3%	3.5%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	95.2%	97.2%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

TPH METHOD BLANK SUMMARY

BLANK NO.

QO20MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QO08 Project No.: BLAINE

Date Extracted: 03/17/10 Matrix: SOLID

Date Analyzed : 03/19/10 Instrument ID : FID4A

Time Analyzed : 0844

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	QO20LCSS1	QO20LCSS1	03/19/10
02	QO20LCSDS1	QO20LCSDS1	03/19/10
03	SB-24-5	QO08B	03/19/10
04	SB-24-5 MS	QO08BMS	03/19/10
05	SB-24-5 MSD	QO08BMSD	03/19/10
06	SB-25-5	QO08C	03/19/10
07	SB-25-16	QO08D	03/19/10
08	SB-24-8	QO08E	03/19/10
09	SB-24-16	QO08F	03/19/10
10	SB-26-5	QO08G	03/19/10
11	SB-26-14	QO08H	03/19/10
12	SB-28-5	QO08I	03/19/10
13	SB-28-16	QO08J	03/19/10

FORM IV TPH

TOTAL SOLIDS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 3/26/10

Worklist: 1532
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1.	QO08B 10-6575	_____	_____	*	75.70
2.	QO08C 10-6576	_____	_____	*	70.10
3.	QO08D 10-6577	_____	_____	*	90.70
4.	QO08E 10-6578	_____	_____	*	69.70
5.	QO08F 10-6579	_____	_____	*	92.80
6.	QO08G 10-6580	_____	_____	*	70.80
7.	QO08H 10-6581	_____	_____	*	67.70
8.	QO08I 10-6582	_____	_____	*	72.00
9.	QO08J 10-6583	_____	_____	*	64.30

Worklist ID: 1532 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

BETX/TPHG Total Solids-betxts
Data By: Monica Herbert
Created: 3/25/10

Worklist: 1030
Analyst: MH
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. QO08B 10-6575	_____	_____		$ 75.7
2. QO08C 10-6576	_____	_____		$ 70.1
3. QO08D 10-6577	_____	_____		$ 90.7
4. QO08E 10-6578	_____	_____		$ 69.7
5. QO08F 10-6579	_____	_____		$ 92.8
6. QO08G 10-6580	_____	_____		$ 70.8
7. QO08H 10-6581	_____	_____		$ 67.7
8. QO08I 10-6582	_____	_____		$ 72.0
9. QO08J 10-6583	_____	_____		$ 64.3

Worklist ID: 1030 Page: 1
* - BETX TS Copied From VOA TS
% - BETX TS Copied From Metals TS
$ - BETX TS Copied From Extraction TS

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 3/17/10

Worklist: 8433
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QO08B 10-6575 SB-24-5	1.12	11.92	9.30	75.7	NR
2.	QO08C 10-6576 SB-25-5	1.13	11.35	8.29	70.1	NR
3.	QO08D 10-6577 SB-25-16	1.12	11.28	10.34	90.7	NR
4.	QO08E 10-6578 SB-24-8	1.13	12.06	8.75	69.7	NR
5.	QO08F 10-6579 SB-24-16	1.11	12.07	11.28	92.8	NR
6.	QO08G 10-6580 SB-26-5	1.13	11.97	8.80	70.8	NR
7.	QO08H 10-6581 SB-26-14	1.12	11.63	8.24	67.7	NR
8.	QO08I 10-6582 SB-28-5	1.12	12.26	9.14	72.0	NR
9.	QO08J 10-6583 SB-28-16	1.13	12.36	8.35	64.3	NR

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 3/17/10

Worklist: 8433
Analyst: WC
Comments:

Oven ID: 015

Balance ID: 2450193

Samples In: Date: 3/17/10 Time: 19:00 Temp: 100°C Analyst: WC

Samples Out: Date: 3/18/10 Time: 6:30 Temp: _____ Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	QO08B 10-6575 SB-24-5	1.12g	11.92g		9.30	NR
2.	QO08C 10-6576 SB-25-5	1.13g	11.75g		8.29	NR
3.	QO08D 10-6577 SB-25-16	1.12g	11.28g		10.34	NR
4.	QO08E 10-6578 SB-24-8	1.13g	12.06g		8.75	NR
5.	QO08F 10-6579 SB-24-16	1.11g	12.07g		11.28	NR
6.	QO08G 10-6580 SB-26-5	1.13g	11.97g		8.80	NR
7.	QO08H 10-6581 SB-26-14	1.12g	11.63g		8.24	NR
8.	QO08I 10-6582 SB-28-5	1.12g	12.26g		9.14	NR
9.	QO08J 10-6583 SB-28-16	1.13g	12.36g		8.35	NR

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 6, 2010

Glen Vedera
SAIC
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

RE: Project: Blaine Mini Mart, 188714
ARI Job No: QP09

Dear Glen:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of the analyses are discussed in the Case Narrative.

An electronic copy of this data and associated raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.



Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com

Enclosures

cc: eFile QP09

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody
Documentation

prepared
for

Science App. International Corp

Project: Blaine Mini Mart, 188714

ARI JOB NO: QP09

prepared
by

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: QP09	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: SAIC	Phone: 206 271 4691	Date: 3/17/10	Ice Present?
Client Contact: Glen Vedera		No. of Coolers:	Cooler Temps:
Client Project Name: Blaine Mini mart			
Client Project #: 1887141	Samplers:		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX+MTBE EDB, EDC 8260C	Analysis Requested: NWTPH-Dx	Analysis Requested: NWTPH-Dx w/silica gel	Analysis Requested: cPAH 8270 SIM	Analysis Requested: Total Lead 6010B	Analysis Requested: Dissolved Lead *	Analysis Requested	Analysis Requested	Notes/Comments
MW-5-031710	3/17/10	1225	Water	11	X	X	X	X	X	X			
MW-5-031710-FD	3/17/10	0800	Water	11	X	X	X	X	X	X			
TB-031710-01	3/17/10	0800	Water	2	X	X	—	AJW	3/19/10	—			
MW-1-031710	3/17/10	1520	Water	11	X	X	X	X	X	X			
MW-4-031710	3/17/10	1640	Water	11	X	X	X	X	X	X			
MW-3-031710	3/17/10	1820	Water	11	X	X	X	X	X	X			
MW-2-031810	3/18/10	1000	Water	11	X	X	X	X	X	X			

Alisa Wells 3/19/10

Comments/Special Instructions: *Dissolved lead not preserved or field filtered	Relinquished by: (Signature) Alisa Wells	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Alisa Wells	Printed Name: Rich Hulson	Printed Name:	Printed Name:
	Company: SAIC	Company: ARI	Company:	Company:
	Date & Time: 3/19/10 1120	Date & Time: 3/19/10 1120	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SAIC Project Name: Blaine Mini Mart

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: QPC9 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	4.2	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: _____ Date: 3/19/10 Time: 1225

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	(Bubble Wrap) (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	3/1/10	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: AV Date: 3/19/10 Time: 1314

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

MW-2-031810 = 1Sm TripBlanks = 2 Lg

By: AV Date: 3/19/10

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	
			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

PRESERVATION VERIFICATION 03/19/10
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **QP09**

PC: Cheronne
VTSR: 03/19/10

Inquiry Number: NONE
Analysis Requested: 03/19/10
Contact: Verdera, Glen
Client: Science App. International Corp
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 188714
Project: Blaine Mini Mart
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
10-7333 **QP09A**	MW-5-031710						TOT															
10-7334 **QP09B**	MW-5-031710-FD						TOT															
10-7335 **QP09C**	MW-1-031710						TOT															
10-7336 **QP09D**	MW-4-031710						TOT															
10-7337 **QP09E**	MW-3-031710						TOT															
10-7338 **QP09F**	MW-2-031810						TOT															
10-7340 **QP09H**	MW-5-031710						DIS									N						
10-7341 **QP09I**	MW-5-031710-FD						DIS									N						
10-7342 **QP09J**	MW-1-031710						DIS									N						
10-7343 **QP09K**	MW-4-031710						DIS									N						
10-7344 **QP09L**	MW-3-031710						DIS									N						
10-7345 **QP09M**	MW-2-031810						DIS									N						

Checked By AV Date 3/19/10

Case Narrative

prepared
for

Science App. International Corp

Project: Blaine Mini Mart, 188714

ARI JOB NO: QP09

prepared
by

Analytical Resources, Inc.

Case Narrative

Client: SAIC
Project: Blaine Mini Mart, 188714
ARI Job No.: QP09

Sample Receipt

Six water samples and a trip blank were received on March 19, 2010, under ARI job QP09. The cooler temperature measured by IR thermometer following ARI SOP was 4.2°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatile by SW8260C

The samples were analyzed within the recommended holding times, using internal standard methods.

Initial calibrations were within method requirements. Internal standard areas were within limits.

The continuing calibration of Methyl tert-Butyl Ether fell outside the 20% control limit low for the 3/24/10 analysis. All detected results for this compound on the date of analysis have been flagged with a "Q" qualifier. No further corrective action was required.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

SIM PAHs by SW8270D

The samples were extracted and analyzed within the recommended holding times, using internal standard methods.

Initial calibrations were within method requirements.

The continuing calibration of Chrysene fell outside the 20% control limit low for the 3/27/10 analysis. All detected results for this compound on the date of analysis have been flagged with a "Q" qualifier. No further corrective action was required.

The internal standard area of Naphthalene-d8 was outside the control limits high for sample **MW-2-031810**. The sample was diluted and re-analyzed twice and all internal standards were within control limits. All three sets of data have been included for review. No further corrective action was required.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit.

The LCSD percent recovery of Chrysene fell outside the control limits low for **LCS-031910**. All other LCS and LCSD percent recoveries were within control limits. No corrective action was required.

TPH-Gx by NWTPH

The samples and associated laboratory QC were analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits.

Acid/Silica Cleaned TPH-Dx by NWTPH

The samples were extracted and analyzed within recommended holding times, using internal standard methods.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

Total Metals by SW6010B

The samples and associated laboratory QC were digested and analyzed within method recommended holding times, using internal standards.

The method blanks were clean at the reporting limit. The LCS percent recoveries were within control limits.

The matrix spike percent recoveries and duplicate RPDs were within control limits.

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

3/6/2010

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1662-3	ABN	100/150	MEOH	10/08/10
B	1633-3	SIM PNA	15/75	MEOH	08/12/10
C*	1559-1	SIM ABN	25/37.5	MEOH	03/13/10
D	1689-2	LOW PCB	0.2	ACETONE	12/29/10
E	1661-2	HERB	62.5	MEOH	10/02/10
F	1683-3	PCP	12.5	ACETONE	12/09/10
G*	1534-1	1,4DIOXANE	100	MEOH	02/20/10
H	1594-1	OP-PEST	25	MEOH	04/01/10
I	1634-1	LOW S. PNA	1.5	MEOH	08/12/10
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1682-1	EPH	1500	MECL2	09/17/10
N	1689-3	PCB	2	ACETONE	12/29/10
O	1699-1	TPH	450	MECL2	07/02/10
P	1666-3	HCID	2250	MECL2	05/06/10
Q	1620-2	EDB	1	MEOH	06/22/10
R	1615-1	RESIN ACID	250	ACETONE	06/17/10
S#	1568-5	PBDE	.25	MEOH	NA
T	1674-2	ALKYL PNA	10	MEOH	07/30/10
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					
#project specific					
Y					
Z					

QP09 : 00011

LCS SOLUTIONS

3/6/2010

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1686-1	PCB 1660	20	ACETONE	09/01/10
2#	1472-3	BCOC PEST	10	ACETONE	NA
3	1620-4	PEST	02/04/20	ACETONE	06/26/10
4	1667-1	LOW PEST	0.2/0.4/2	ACETONE	06/26/10
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1705-1	ABN	100	ACETONE	07/01/10
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1698-2	ABN ACID	100/200	MECL2	07/14/10
11	1642-2	TPHD	15000	ACETONE	09/07/10
12	1698-1	ABN BASE	200	MEOH	07/24/10
13	1613-1	LOW PCB	2	ACETONE	06/08/10
14*	1547-1	LOW ABN ACID	10/20	MEOH	04/10/10
15*	1591-3	SIM PNA	15/75	MEOH	08/28/10
16	1602-3	DIOXANE	100	MEOH	03/20/10
17	1644-1	1248 PCB	10	ACETONE	09/10/10
18*	1591-4	LOW SIM PNA	1.5	ACETONE	08/28/10
19	1685-3	AK103	7500	ACETONE	09/03/10
20	1682-4	PNA	100	ACETONE	12/04/10
21	1593-3	SKY/BHT	100	MEOH	03/31/10
22	1702-4	HERB	12.5/12500	MEOH	04/17/10
23*	1505-1	LW ABN BASE	20	MEOH	03/20/10
24	1696-1	LOW ABN	10	ACETONE	01/13/11
25#	1481-1	DIPHENYL	100	MEOH	NA
26	1702-5	OP-PEST	25	MEOH	03/31/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1684-1	ADD. PEST	4	ACETONE	03/25/10
29#	1496-3	DECANES	100	MEOH	NA
30	1620-1	EDB/DBCP	0.2	MEOH	06/22/10

QP09:00012

LCS SOLUTIONS

3/6/2010

31	1596-1	TERPINEOL	100	MEOH	04/03/10
32	1619-3	GUAIACOL	50-200	ACETONE	04/30/10
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
50	1617-1	FULL RESIN	250	ACETONE	06/17/10
51	1696-3	DDTS	2.5	ACETONE	06/03/10
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1701-2	PBDE	0.5	ACETONE	02/10/11
#=PROJECT SPECIFIC SOLUTION					
	*=REVERIFIED SOLUTION				

QP09:00013

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 10 mL Purge Volume [1,7]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI Control Limits	ARI ME Control Limits[2]
LCS Spike Recovery [6]		
tert-Butanol	49 - 150	32 - 167
Metyl-*tert*-butylether	47 - 154	29 - 172
Di-*iso*-propylether	43 - 149	25 - 167
Ethyl-*tert*-butylether	45 - 155	27 - 173
tert-Amyl methylether	52 - 151	35 - 168
Dichlorodifluoromethane	59 - 129	47 - 141
Chloromethane	66 - 123	57 - 133
Vinyl Chloride	68 - 121	59 - 130
Bromomethane	55 - 148	40 - 164
Chloroethane	47 - 155	29 - 173
1,1,2-Trichloro-1,2,2-trifluoroethane	70 - 129	60 - 139
Acrolein	24 170	**10** - 194
Trichlorotrifluoroethane	74 - 127	65 - 136
Acetone	70 - 130	60 - 140
1,1-Dichloroethene	72 - **120**	64 - 127
Bromoethane	73 - 131	63 - 141
Methyl Iodide	34 - 183	**10** - 208
Methylene Chloride	70 - 124	61 - 133
Acrylonitrile	71 - 135	60 - 146
Methyl tert-Butyl Ether	78 - **120**	72 - 122
Carbon Disulfide	66 - 129	56 - 140
trans-1,2-Dichloroethene	76 - **120**	70 - 120
Vinyl Acetate	49 - 134	35 - 148
1,1-Dichloroethane	75 - **120**	68 - 124
2-Butanone	78 - 131	69 - 140
2,2-Dichloropropane	68 - 121	59 - 130
cis-1,2-Dichloroethene	80 - **120**	75 - **120**
Chloroform	78 - **120**	72 - 121
Bromodichloromethane	79 - **120**	73 - **120**
1,1,1-Trichloroethane	76 - **120**	69 - 123
1,1-Dichloropropene	78 - **120**	72 - 120
Carbon Tetrachloride	70 - 126	61 - 135
1,2-Dichloroethane	78 - **120**	72 - **120**
Benzene	79 - **120**	73 - **120**
Trichloroethene	78 - **120**	72 - 122
1,2-Dichloropropane	80 - **120**	75 - **120**
Bromochloromethane	78 - **120**	72 - 124

QP09 : 00014

Dibromomethane	80 - **120**	75 - **120**
2-Chloroethylvinylether	68 - 134	57 - 145
4-Methyl-2-Pentanone	73 - 131	63 - 141
cis-1,3-Dichloropropene	78 - **120**	72 - 121
Toluene	79 - **120**	74 - **120**
trans-1,3-Dichloropropene	75 - **120**	68 - 124
2-Hexanone	75 - 130	66 - 139
1,1,2-Trichloroethane	79 - **120**	74 - **120**
1,3-Dichloropropane	78 - **120**	72 - 120
Tetrachloroethene	72 - **120**	65 - 125
Dibromochloromethane	78 - **120**	71 - 125
Ethylene Dibromide	75 - **120**	68 - 125
Chlorobenzene	79 - **120**	73 - **120**
Ethylbenzene	78 - 121	71 - 128
1,1,2,2-Tetrachloroethane	72 - **120**	64 - 127
m,p-Xylene	65 - 129	54 - 140
o-Xylene	76 - 120	69 - 127
Styrene	74 - 121	66 - 129
Isopropylbenzene	74 - 120	66 - 128
Bromoform	71 - 120	63 - 128
1,1,1,2-Tetrachloroethane	75 - **120**	68 - 126
1,2,3-Trichloropropane	73 - 120	65 - 128
trans-1,4-Dichloro-2-butene	65 - 135	53 - 147
n-Propylbenzene	76 - 121	69 - 129
Bromobenzene	72 - **120**	64 - 126
1,3,5-Trimethylbenzene	74 - 123	66 - 131
2-Chlorotoluene	74 - **120**	67 - 127
4-Chlorotoluene	75 - **120**	68 - 125
tert-Butylbenzene	73 - 121	65 - 129
1,2,4-Trimethylbenzene	73 - 124	65 - 133
sec-Butylbenzene	75 - 123	67 - 131
4-Isopropyltoluene	71 - 125	62 - 134
1,3-Dichlorobenzene	72 - **120**	64 - 127
1,4-Dichlorobenzene	76 - **120**	69 - 123
n-Butylbenzene	72 - 124	63 - 133
1,2-Dichlorobenzene	75 - **120**	68 - 124
1,2-Dibromo-3-chloropropane	67 - 121	58 - 130
1,2,4-Trichlorobenzene	71 - 120	63 - 128
Hexachloro-1,3-butadiene	67 - 124	58 - 134
Naphthalene	71 - 125	62 - 134
1,2,3-Trichlorobenzene	61 - 134	49 - 146
MB/LCS Surrogate Recovery		
Dibromofluoromethane	64 - 133	(3)
d4-1,2-Dichloroethane	70 - 132	(3)
d8-Toluene	**80 - 120**	(3)

QP09 : 00015

4-Bromofluorobenzene	**80 - 120**	(3)
d4-1,2-Dichlorobenzene	**80 - 120**	(3)
Sample Surrogate Recovery		
Dibromofluoromethane	30 - 160 [5]	(3)
d4-1,2-Dichloroethane	**80** - 143	(3)
d8-Toluene	**80 - 120**	(3)
4-Bromofluorobenzene	**80 - 120**	(3)
D4-1,2-Dichlorobenzene	**80** - 120	(3)

(1) Control Limits calculated using all data generated 1/1/08 through 4/15/09.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard[4] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(3) Marginal Exceedances not allowed for surrogate standards.
(4) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(5) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(6) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.

QP09 : 00016

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Polycyclic Aromatic Hydrocarbons Selected Ion Monitoring (SIM) EPA Method SW-846-8270D-Modified Low Level Aqueous Samples[1,7]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Volume / Final Volume	500 mL to 0.5 mL	
	Control Limits	ME Limits [2]
LCS Spike Recovery [6]		
Napthalene	41 - 101	31 - 111
2-Methylnapthalene	47 - **100**	39 - 103
1-Methylnapthalene	30 - 160 [3]	30 - 160 [3]
Acenaphthylene	35 - **100**	25 - 104
Acenapthene	43 - 104	33 - 114
Dibenzofuran	37 - **100**	27 - 108
Fluorene	51 - 103	42 - 112
Phenanthrene	55 - 109	46 - 118
Anthracene	30 - 101	18 - 113
Fluoranthene	49 - 123	37 - 135
Pyrene	48 - 120	36 - 132
Benz(a)anthracene	43 - 113	31 - 125
Chrysene	59 - 112	50 - 121
Benzo(b)fluoranthene	44 - 121	31 - 134
Benzo(k)fluoranthene	50 - 117	39 - 128
Benzo(a)pyrene	**10** - **100**	**10** - 109
Indeno(1,2,3-cd)pyrene	43 - 112	32 - 124
Dibenzo(a,h)anthracene	42 - 114	30 - 126
Benzo(g,h,i)perylene	31 - 118	17 - 133
MB / LCS Surrogate Recovery		
d10-2-Methylnaphthalene	42 - **100**	(4)
d14-Dibenzo(a,h)anthracene	40 - 125	(4)
Sample Surrogate Recovery		
d10-2-Methylnaphthalene	31 - 109	(4)
d14-Dibenzo(a,h)anthracene	**10** - 133	(4)

(1) ARI's Control limits calculated using all available spike recovery data from 1/1/08 through 12/1/08.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of one marginal exceedance is acceptable. Two or more marginal exceedances require corrective action.
(3) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(4) Marginal Exceedances not allowed for surrogate standards.
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6)Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(7) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.

GP09 : 00017

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Spike Recovery Control Limits BTEX – EPA Method 8021 & Gasoline – Methods NWTPH-G and AK101[1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix:	Aqueous Samples		Soil / Sediment Samples	
Analytical Method:	Method 8021B	NWTPH-G AK-101	Method 8021B	NWTPH-G AK-101
LCS Spike Recovery [3]				
Benzene	73 - **120**		72 - **120**	
Toluene	73 - **120**		72 - **120**	
Ethyl benzene	69 - **120**		71 - **120**	
m,p-Xylenes	72 - **120**		72 - **120**	
o-Xlyene	73 - **120**		72 - **120**	
MTBE	30 - 182		40 - 163	
Gasoline		75 - 124		74 - 124
Method Blank/LCS Surrogate Recovery				
Trifluorotoluene (TFT)	79 - **120**	**80 - 120**	80 - **120**	**80 - 120**
Bromobenzene	79 - **120**	**80 - 120**	77 - **120**	**80 - 120**
Sample Surrogate Recovery				
Trifluorotoluene (TFT)	**80 - 120**	**80** - 120	68 - 124	66 - 123
Bromobenzene	**80 - 120**	**80** - 120	62 - 134	62 - 130

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Highlighted control limits (bold font) are adjusted from the calculated values as follows:
a) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
b) Control limits for analytes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(3) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

QP09 : 00018

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Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water	Soil	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [3]				
Diesel	-- - --	56 - 103	55 - 104	75 - 125
Diesel with Acid & Silica Clean-up	-- - --	43 - 100	54 - 96	(4)
Diesel with Silica Clean-up	-- --	43 - 100	54 - 96	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-- - --	57 - 120	58 - 121	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-- - --	51 - 120	63 - 115	(4)
o-Terphenyl Silica Clean-up		51 - 120	63 - 115	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	35 - 131	53 - 118	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-- - --	41 - 121	49 - 120	(4)
o-Terphenyl with Silica Clean-up		41 - 121	49 - 120	50 - 150

1. Control Limits calculated using all data generated 1/1/08 through 12/31/08
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
4. Alaska State UST Methods do not allow acid cleanup of sample extracts.

QP09 : 00019

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Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

QP09 : 00020

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MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	10.0 mL	
Spike Level*	0.4 µg/L [1]	
Preparation Method	5030B	Water
Instrument	NT3, NT5, NT10	Reporting
Date Analyzed	2/23/09	Limit
ARI Data File	OI99	10 mL Purge Volume
Reporting Units	µg/L	µg/L (ppb)
Analyte	**MDL[3]**	**RL**
Chloromethane	0.096	**1.0**
Vinyl Chloride	0.067	**0.2**
Bromomethane	0.094	**1.0**
Chloroethane	0.055	**0.2**
Trichlorofluoromethane	0.056	**0.2**
Acrolein	3.578	**5.0**
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.083	**0.2**
Acetone	0.622	**5.0**
1,1-Dichloroethene	0.075	**0.2**
Bromoethane	0.098	**0.2**
Iodomethane	0.141	**1.0**
Methylene Chloride	0.112	**0.5**
Acrylonitrile	0.223	**1.0**
Carbon Disulfide	0.071	**0.2**
Trans-1,2-Dichloroethene	0.063	**0.2**
Vinyl Acetate	0.089	**1.0**
1,1-Dichloroethane	0.072	**0.2**
2-Butanone	1.152	**5.0**
2,2-Dichloropropane	0.085	**0.2**
Cis-1,2-Dichloroethene	0.054	**0.2**
Chloroform	0.048	**0.2**
Bromochloromethane	0.195	**0.2**
1,1,1-Trichloroethane	0.057	**0.2**
1,1-Dichloropropene	0.061	**0.2**
Carbon Tetrachloride	0.089	**0.2**
1,2-Dichloroethane	0.051	**0.2**
Benzene	0.043	**0.2**
Trichloroethene	0.088	**0.2**
1,2-Dichloropropane	0.040	**0.2**
Bromodichloromethane	0.035	**0.2**
Dibromomethane	0.081	**0.2**
2-Chloroethyl Vinyl Ether	0.135	**1.0**

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MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	10.0 mL	
Spike Level*	0.4 µg/L [1]	
Preparation Method	5030B	Water
Instrument	NT3, NT5, NT10	Reporting
Date Analyzed	2/23/09	Limit
ARI Data File	OI99	10 mL Purge Volume
Reporting Units	µg/L	µg/L (ppb)
Analyte	**MDL[3]**	**RL**
4-Methyl-2-Pentanone	0.199	**5.0**
Cis 1,3-dichloropropene	0.046	**0.2**
Toluene	0.041	**0.2**
Trans 1,3-Dichloropropene	0.043	**0.2**
2-Hexanone	0.481	**5.0**
1,1,2-Trichloroethane	0.055	**0.2**
1,3-Dichloropropane	0.036	**0.2**
Tetrachloroethene	0.056	**0.2**
Chlorodibromomethane	0.047	**0.2**
1,2-Dibromoethane	0.074	**0.2**
Chlorobenzene	0.032	**0.2**
Ethyl Benzene	0.054	**0.2**
1,1,1,2-Tetrachloroethane	0.045	**0.2**
m,p-xylene	0.062	**0.4**
o-Xylene	0.043	**0.2**
Styrene	0.030	**0.2**
Bromoform	0.062	**0.2**
1,1,2,2-Tetrachloroethane	0.082	**0.2**
1,2,3-Trichloropropane	0.110	**0.5**
Trans-1,4-Dichloro 2-Butene	0.221	**1.0**
N-Propyl Benzene	0.045	**0.2**
Bromobenzene	0.069	**0.2**
Isopropyl Benzene	0.050	**0.2**
2-Chloro Toluene	0.050	**0.2**
4-Chloro Toluene	0.044	**0.2**
tert-Butyl Benzene	0.043	**0.2**
1,3,5-Trimethyl Benzene	0.042	**0.2**
1,2,4-Trimethylbenzene	0.040	**0.2**
S-Butyl Benzene	0.040	**0.2**
4-Isopropyl Toluene	0.053	**0.2**
1,3-Dichlorobenzene	0.043	**0.2**
1,4-Dichlorobenzene	0.051	**0.2**
N-Butyl Benzene	0.065	**0.2**

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MDL and RL Summary GC-MS – VOA Analysis of Water
10 mL Purge Volume (EPA Methods 8260C)

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Weight/Volume	10.0 mL	
Spike Level*	0.4 µg/L (1)	
Preparation Method	5030B	Water
Instrument	NT3, NT5, NT10	Reporting
Date Analyzed	2/23/09	Limit
ARI Data File	OI99	10 mL Purge Volume
Reporting Units	µg/L	µg/L (ppb)
Analyte	**MDL(3)**	**RL**
1,2-Dichlorobenzene	0.051	**0.2**
1,2-Dibromo 3-Chloropropane	0.137	**0.5**
1,2,4-Trichlorobenzene	0.111	**0.5**
Hexachloro 1,3-Butadiene	0.076	**0.5**
Naphthalene	0.127	**0.5**
1,2,3-Trichlorobenzene	0.101	**0.5**
Dichlorodifluoromethane	0.077	**0.2**
Methyl-*tert*-butyl ether	0.049	**0.5**
Ethanol (2)	53.1	**200**
tert-Butanol (2)	2.71	**2.5**
Diisopropyl ether (2)	0.033	**0.5**
Ethyl-*tert*-butyl ether (2)	0.086	**0.5**
tert-Amyl methyl ether (2)	0.099	**0.5**

(1) The ketones are spiked at 2.0 ppb and m/p-xylene at .8 ppb.
(2) Oxygenates MDL study (ME90) performed 4/1/08
(3) MDL performed on 3 instruments (NT3, NT5, NT10) with the highed calculated MDL listed
Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL for all analytes, incluing those without a calculated MDL, are based on the lowest concentration used to calibrate the analytical instrument unless otherwise noted.

ARI Data File	Date	Instrument	Spike Level	Average Recovery
MD52	12/27/07	NT-5	0.1 µg/L	106%
MD52	1/18/08	NT-7	0.1 µg/L	83.0%
ME90	4/1/08	Finn3	1.0 µg/L	105%
OI99	2/23/09	NT3, NT5, NT10	0.1 µg/L	193%

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MDL and RL Summary GC - MS - SIM Analysis of PNA in Water
EPA Method SW-846-8270D – Liquid – Liquid Extraction

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Sample Volume	**500 mL**	
Extract Final Volume	**0.5 mL**	
Spike Level	**20 ng/L**	
Instrument	**NT-1 & NT-2**	**Reporting**
Date Analyzed	**4/23/08**	**Limit**
ARI Data File	**MK96**	**ng/L**
Reporting Units	**ng/L (ppt)**	**Part-per-trillion**
Analyte	**MDL**	**RL**
Naphthalene	3.55	**10.0**
1-Methylnaphthalene	3.13	**10.0**
2-Methylnaphthalene	3.13	**10.0**
Acenaphthylene	2.16	**10.0**
Acenaphthene	5.01	**10.0**
Dibenzofuran	2.46	**10.0**
Fluorene	2.70	**10.0**
Phenanthrene	3.95	**10.0**
Anthracene	2.83	**10.0**
Fluoranthene	6.08	**10.0**
Pyrene	5.62	**10.0**
Benzo(a)Anthracene	4.14	**10.0**
Chrysene	3.49	**10.0**
Benzo(b)Fluoranthene	2.94	**10.0**
Benzo(k)Fluoranthene	3.38	**10.0**
Benzo(a)Pyrene	3.05	**10.0**
Indeno(1,2,3-cd)Pyrene	3.14	**10.0**
Dibenz(a,h)Anthracene	2.26	**10.0**
Benzo(g,h,i)Perylene	4.77	**10.0**

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is defined as the lowest value at which qualitative detection of a given analyte is reported. The RL is based on the MDL, method efficiency, and analyte response.

MDL Verifications					
Sample Matrix	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**Recovery**
Water	5.00 ng/L	Liq-Liq	4/23/08	MK96	38.2 – 163 %

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MDL and RL Summary for Gasoline Range Organics
Aqueous Samples – Direct Purge & Trap

MDL's and reporting limits are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

Method	Extraction Method	Sample Volume	MDL Spike Level	Instrument ID	MDL mg/L	MDL Date	RL mg/L
NWTPH-G (Toluene – Naphthalene)	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.015[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.060[2]	1/6/10	**0.25**
8015B (2-Methylpentane - 1,2,4-Trimethylbenzene)	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.011[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.032[2]	1/6/10	**0.25**
WA-TPH-G (Toluene – nC_{12})	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.012[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.061[2]	1/6/10	**0.25**
AK101 (nC_6 – nC_{12})	Direct Purge & Trap	15.0 mL	.06 mg/L	PID1	0.011[1]	5/10/06	**0.03**
		5.0 mL	.20 mg/L	PID3	0.039[2]	1/6/10	**0.10**

ARI Data File	Instrument	Purge Volume (mL)	Date	Spike Level (mg/L)	Gasoline Spike Average Recovery
QD22	PID3	5	1/6/10	0.063	122-142%
JH50	PID1	15	5/10/06	0.015	133%

(1) ARI data file = JH50
(2) ARI data file = QD22

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using six or seven degrees of freedom.
Reporting Limit (RL) is the sample concentration equivalent to the lowest concentration standard used to calibrate the instrument.

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MDL and RL Summary
Total Petroleum Hydrocarbon Analyses of Water

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

A - Diesel Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/L	RL mg/L
NWTPH-HCID	(2)	(2)	(2)	(2)	(2)	(2)	**0.63**
NW-TPH-D C_{12}-C_{24}	1/25/09	OE29	Sep Funnel	0.20 mg/L	500 mL 1.0 mL	0.0306	**0.25**
AK102 C_{10}-C_{25}	1/25/09	OE29	Sep Funnel	0.20 mg/L	500 mL 1.0 mL	0.0283	**0.25**
JP-4 Toluene-C14	2/6/07	JN64	Sep Funnel	0.40 mg/L	500 mL 2.0 mL	0.0786	**0.50**

B - Residual Range Organics

Method	MDL Date	Data File	Extraction Method	MDL Spike Level	Sample Amt/FEV	MDL[1] mg/L	RL mg/L
NWTPH-HCID	(2)	(2)	(2)	(2)	(2)	(2)	**0.63**
NW-TPH-Dext C_{24}-C_{38}	3/11/09	OO47	Sep Funnel	0.40 mg/L	500 mL 1.0 mL	0.027	**0.50**
AK103 C_{25}-C_{38}	3/11/09	OO48	Sep Funnel	0.40 mg/L	500 mL 1.0 mL	0.028	**0.50**

MDL Verifications					
Analyte	**Spike Level**	**Extraction**	**Date**	**ARI Data File**	**Recovery**
NWTPH-D / AK-102	0.05 mg/L	Sep Funnel	1/25/09	OE29	TPH-D = 76% AK102 = 76%
JP-4	0.10 mg/L	Sep Funnel	2/6/07	JN64	84%
NW-TPH-Dext	0.10 mg/L	Sep Funnel	3/11/09	OO47	90%
AK103	0.10 mg/L	Sep Funnel	3/11/09	OO48	112%

1. MDL studies performed on FID instrument 3A.
2. MDL studies are not performed for HCID analyses. The reporting limits are specified in the method.

Method Detection Limit studies are performed in accordance with 40 CFR Part 136, Appendix B using seven degrees of freedom.
Reporting Limit (RL) is equal to the lowest concentration standard use to calibrate the GC-FID adjusted for the final effective volume of the sample extract.

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MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		ON85	ON85			
Sample Matrix		Water	Soil	Reporting	Reporting	Reporting
Sample Weight/Volume		50 mL	1 g	Limit	Limit	Limit
Final Digestate Volume		50 mL	100 mL	Water	Soil[3]	Tissue[4]
Analyte	MDL Spike mg/L	MDL- µg/L[1]	MDL- mg/kg[2]	RL- µg/L	RL- mg/kg	RL- mg/kg[4]
Aluminum	0.03	13.38	0.635	50	5.0	1.00
Antimony	0.05	2.97	0.454	50	5.0	1.00
Arsenic	0.05	5.35	0.198	50	5.0	1.00
Barium	0.003	1.23	0.073	3.0	0.3	0.06
Beryllium	0.001	0.13	0.006	1.0	0.1	0.02
Boron	0.01	4.97	0.071	20	2.0	0.40
Cadmium	0.002	0.47	0.039	2.0	0.2	0.04
Calcium	0.03	14.48	1.051	50	5.0	1.00
Chromium	0.004	1.80	0.105	5.0	0.5	0.10
Cobalt	0.002	0.16	0.039	3.0	0.3	0.06
Copper	0.004	0.61	0.063	2.0	0.2	0.04
Iron	0.01	8.36	0.313	50	5.0	1.00
Lead	0.01	1.49	0.307	20	2.0	0.40
Magnesium	0.04	3.96	0.190	50	5.0	1.00
Manganese	0.001	0.25	0.013	1.0	0.1	0.02
Molybdenum	0.005	2.10	0.063	5.0	0.5	0.10
Nickel	0.02	5.07	0.245	10	1.0	0.20
Potassium	1.50	119.29	13.210	500	50	10.00
Selenium	0.05	6.33	0.640	50	5.0	1.00
Silicon	0.03	9.49	0.570	60	(5)	(5)

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MDL and RL Summary Metals Analysis using ICP-OES
Perkin Elmer Optima 4300
EPA Method 6010B

MDL's and reporting are updated periodically. Assure you are using ARI's current detection limits by downloading the files at the time of use: http://www.arilabs.com/portal/downloads/ARI-MDLs.zip

ARI Data File		**ON85**	**ON85**			
Sample Matrix		**Water**	**Soil**	**Reporting**	**Reporting**	**Reporting**
Sample Weight/Volume		**50 mL**	**1 g**	**Limit**	**Limit**	**Limit**
Final Digestate Volume		**50 mL**	**100 mL**	**Water**	**Soil[3]**	**Tissue[4]**
Analyte	**MDL Spike mg/L**	**MDL- µg/L[1]**	**MDL- mg/kg[2]**	**RL- µg/L**	**RL- mg/kg**	**RL- mg/kg[4]**
Silver	0.002	0.54	0.064	**3.0**	**0.3**	**0.06**
Sodium	0.05	54.57	0.658	**500**	**50**	**10**
Strontium	0.001	0.21	0.006	**1.0**	**0.1**	**0.02**
Thallium	0.05	5.02	0.588	**50**	**5.0**	**1.00**
Tin	0.01	2.02	0.206	**10**	**1.0**	**0.20**
Titanium	0.01	1.71	0.148	**5.0**	**0.5**	**0.10**
Vanadium	0.001	0.47	0.063	**3.0**	**0.3**	**0.06**
Zinc	0.01	1.45	0.610	**10.0**	**1.0**	**0.20**

Method Detection Limit (MDL) studies calculated in accordance with 40 CFR Part 136, Appendix B. MDLs are statistical measures of short term precision.

1) MDLs effective 3/20/09.
2) MDLs effective 4/22/09.
3) Soil and sediment reporting limit based on 100% solids, 1.0 g sample with 100 mL final volume.
4) Tissue reported on an "as received" wet weight basis. 5.0g sample with 100mL final volume.
5) ARI does not analyse for Silicon in solid or tissue samples.

Data Summary Package

prepared
for

Science App. International Corp

Project: Blaine Mini Mart, 188714

ARI JOB NO: QP09

prepared
by

Analytical Resources, Inc.

VOLATILE ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-5-031710**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/24/10 16:34

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	**Benzene**	**0.2**	**0.6**	
108-88-3	**Toluene**	**0.2**	**1.1**	
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	**m,p-Xylene**	**0.4**	**3.9**	
95-47-6	**o-Xylene**	**0.2**	**3.9**	
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	96.8%
Bromofluorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-5-031710-FD**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09B
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/24/10 16:59

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	**Benzene**	**0.2**	**0.6**	
108-88-3	**Toluene**	**0.2**	**1.2**	
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	**m,p-Xylene**	**0.4**	**4.0**	
95-47-6	**o-Xylene**	**0.2**	**4.1**	
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	98.7%
Bromofluorobenzene	111%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-1-031710**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09C
LIMS ID: 10-7335
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/24/10 17:24

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	**1,2-Dichloroethane**	**0.2**	**10**	
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	97.7%
Bromofluorobenzene	110%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-4-031710**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09D
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT5/PKC
Date Analyzed: 03/30/10 16:55

Sample Amount: 0.100 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	20	< 20	U
71-43-2	**Benzene**	**20**	**2,800**	
108-88-3	**Toluene**	**20**	**1,800**	
100-41-4	**Ethylbenzene**	**20**	**400**	
179601-23-1	**m,p-Xylene**	**40**	**2,900**	
95-47-6	**o-Xylene**	**20**	**970**	
106-93-4	Ethylene Dibromide	20	< 20	U
1634-04-4	**Methyl tert-Butyl Ether**	**50**	**89**	

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	99.1%
Bromofluorobenzene	98.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-3-031710**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09E
LIMS ID: 10-7337
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT5/PKC
Date Analyzed: 03/30/10 17:21

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	**Benzene**	**0.2**	**6.3**	
108-88-3	**Toluene**	**0.2**	**6.2**	
100-41-4	**Ethylbenzene**	**0.2**	**3.5**	
179601-23-1	**m,p-Xylene**	**0.4**	**46**	
95-47-6	**o-Xylene**	**0.2**	**27**	
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	**Methyl tert-Butyl Ether**	**0.5**	**39**	

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	98.8%
Bromofluorobenzene	99.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-2-031810**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Instrument/Analyst: NT5/PKC
Date Analyzed: 03/30/10 17:46

Sample Amount: 0.0200 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	100	< 100	U
71-43-2	**Benzene**	**100**	**22,000**	
108-88-3	**Toluene**	**100**	**18,000**	
100-41-4	**Ethylbenzene**	**100**	**2,400**	
179601-23-1	**m,p-Xylene**	**200**	**10,000**	
95-47-6	**o-Xylene**	**100**	**3,500**	
106-93-4	Ethylene Dibromide	100	< 100	U
1634-04-4	**Methyl tert-Butyl Ether**	**250**	**3,900**	

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	99.4%
Bromofluorobenzene	96.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blanks**
TB-031710-01

Lab Sample ID: QP09G
LIMS ID: 10-7339
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/24/10 14:04

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	98.6%
Bromofluorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-032410	Method Blank	10	104%	95.6%	101%	NA	0
LCS-032410	Lab Control	10	106%	99.0%	104%	NA	0
LCSD-032410	Lab Control Dup	10	108%	99.5%	106%	NA	0
QP09A	MW-5-031710	10	103%	96.8%	105%	NA	0
QP09B	MW-5-031710-FD	10	104%	98.7%	111%	NA	0
QP09C	MW-1-031710	10	105%	97.7%	110%	NA	0
MB-033010	Method Blank	10	107%	101%	95.7%	NA	0
LCS-033010	Lab Control	10	102%	101%	102%	NA	0
LCSD-033010	Lab Control Dup	10	103%	99.4%	98.8%	NA	0
QP09D	MW-4-031710	10	104%	99.1%	98.9%	NA	0
QP09E	MW-3-031710	10	106%	98.8%	99.3%	NA	0
QP09F	MW-2-031810	10	102%	99.4%	96.0%	NA	0
QP09G	Trip Blanks	10	100%	98.6%	106%	NA	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	70-132	80-143
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-7333 to 10-7339

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-032410**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-032410
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT10/AAR
LCSD: NT10/AAR
Date Analyzed LCS: 03/24/10 11:49
LCSD: 03/24/10 12:14

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,2-Dichloroethane	9.1	10.0	91.0%	9.2	10.0	92.0%	1.1%
Benzene	9.2	10.0	92.0%	9.2	10.0	92.0%	0.0%
Toluene	9.1	10.0	91.0%	9.1	10.0	91.0%	0.0%
Ethylbenzene	8.7	10.0	87.0%	8.7	10.0	87.0%	0.0%
m,p-Xylene	18.0	20.0	90.0%	17.9	20.0	89.5%	0.6%
o-Xylene	8.9	10.0	89.0%	8.9	10.0	89.0%	0.0%
Ethylene Dibromide	10.5	10.0	105%	10.7	10.0	107%	1.9%
Methyl tert-Butyl Ether	16.9 Q	20.0	84.5%	16.2 Q	20.0	81.0%	4.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	106%	108%
d8-Toluene	99.0%	99.5%
Bromofluorobenzene	104%	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-033010**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-033010
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PKC
LCSD: NT5/PKC
Date Analyzed LCS: 03/30/10 11:15
LCSD: 03/30/10 11:40

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,2-Dichloroethane	9.8	10.0	98.0%	9.8	10.0	98.0%	0.0%
Benzene	10.0	10.0	100%	10.2	10.0	102%	2.0%
Toluene	10.0	10.0	100%	10.2	10.0	102%	2.0%
Ethylbenzene	10.3	10.0	103%	10.6	10.0	106%	2.9%
m,p-Xylene	21.0	20.0	105%	21.2	20.0	106%	0.9%
o-Xylene	10.3	10.0	103%	10.3	10.0	103%	0.0%
Ethylene Dibromide	10.1	10.0	101%	9.7	10.0	97.0%	4.0%
Methyl tert-Butyl Ether	10.0	10.0	100%	10.0	10.0	100%	0.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	102%	103%
d8-Toluene	101%	99.4%
Bromofluorobenzene	102%	98.8%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0324

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE APP. INTERNATION

ARI Job No: QP09
Project: BLAINE MINI MART

Lab File ID: MB0324
Lab Sample ID: MB0324

Date Analyzed: 03/24/10
Time Analyzed: 1239

Instrument ID: NT10
Heated Purge: (Y/N) N

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0324	LCS0324	LCS0324	1149
02	LCS0324	LCS0324	LCS0324A	1214
03	TRIP BLANKS	QP09G	QP09G	1404
04	MW-5-031710	QP09A	QP09A	1634
05	MW-5-031710-	QP09B	QP09B	1659
06	MW-1-031710	QP09C	QP09C	1724
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08				
09				
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12				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-032410**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-032410
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT10/AAR
Date Analyzed: 03/24/10 12:39

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	95.6%
Bromofluorobenzene	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB0330A

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE APP. INTERNATION

ARI Job No: QP09
Project: BLAINE MINI MART

Lab File ID: 03301006
Lab Sample ID: MB0330A

Date Analyzed: 03/30/10
Time Analyzed: 1232

Instrument ID: NT5
Heated Purge: (Y/N) N

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS0330	LCS0330	03301003	1115
02	LCSD0330	LCSD0330	03301004	1140
03	MW-4-031710	QP09D	03301016	1655
04	MW-3-031710	QP09E	03301017	1721
05	MW-2-031810	QP09F	03301018	1746
06				
07				
08				
09				
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-033010**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-033010
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT5/PKC
Date Analyzed: 03/30/10 12:32

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	101%
Bromofluorobenzene	95.7%

SIM SEMIVOLATILE ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-5-031710
SAMPLE

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 19:33
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**0.010**	**0.68**	
91-57-6	**2-Methylnaphthalene**	**0.010**	**0.13**	
90-12-0	**1-Methylnaphthalene**	**0.010**	**1.4**	**E**
208-96-8	Acenaphthylene	0.010	< 0.010	U
83-32-9	**Acenaphthene**	**0.010**	**0.64**	
86-73-7	**Fluorene**	**0.010**	**1.5**	**E**
85-01-8	**Phenanthrene**	**0.010**	**2.0**	**E**
120-12-7	**Anthracene**	**0.010**	**0.14**	
206-44-0	**Fluoranthene**	**0.010**	**0.020**	
129-00-0	**Pyrene**	**0.010**	**0.050**	
56-55-3	Benzo(a)anthracene	0.010	< 0.010	U
218-01-9	Chrysene	0.010	< 0.010	U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010	U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010	U
50-32-8	Benzo(a)pyrene	0.010	< 0.010	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010	U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010	U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010	U
132-64-9	**Dibenzofuran**	**0.010**	**0.86**	

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.7%
d14-Dibenzo(a,h)anthracene	35.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-5-031710
DILUTION

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/29/10 11:52
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.030**	**0.68**
91-57-6	**2-Methylnaphthalene**	**0.030**	**0.14**
90-12-0	**1-Methylnaphthalene**	**0.030**	**1.3**
208-96-8	Acenaphthylene	0.030	< 0.030 U
83-32-9	**Acenaphthene**	**0.030**	**0.91**
86-73-7	**Fluorene**	**0.030**	**1.7**
85-01-8	**Phenanthrene**	**0.030**	**1.9**
120-12-7	**Anthracene**	**0.030**	**0.13**
206-44-0	Fluoranthene	0.030	< 0.030 U
129-00-0	**Pyrene**	**0.030**	**0.049**
56-55-3	Benzo(a)anthracene	0.030	< 0.030 U
218-01-9	Chrysene	0.030	< 0.030 U
205-99-2	Benzo(b)fluoranthene	0.030	< 0.030 U
207-08-9	Benzo(k)fluoranthene	0.030	< 0.030 U
50-32-8	Benzo(a)pyrene	0.030	< 0.030 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.030	< 0.030 U
53-70-3	Dibenz(a,h)anthracene	0.030	< 0.030 U
191-24-2	Benzo(g,h,i)perylene	0.030	< 0.030 U
132-64-9	**Dibenzofuran**	**0.030**	**0.93**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.3%
d14-Dibenzo(a,h)anthracene	34.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-5-031710-FD
SAMPLE

Lab Sample ID: QP09B
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 19:57
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**7.1 E**
91-57-6	**2-Methylnaphthalene**	**0.010**	**1.9 E**
90-12-0	**1-Methylnaphthalene**	**0.010**	**1.4 E**
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	**Acenaphthene**	**0.010**	**0.014**
86-73-7	**Fluorene**	**0.010**	**0.026**
85-01-8	**Phenanthrene**	**0.010**	**0.020**
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	**Dibenzofuran**	**0.010**	**0.019**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.7%
d14-Dibenzo(a,h)anthracene	51.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-5-031710-FD
DILUTION

Lab Sample ID: QP09B
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/29/10 12:16
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 20.0

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.20**	**10**
91-57-6	**2-Methylnaphthalene**	**0.20**	**2.7**
90-12-0	**1-Methylnaphthalene**	**0.20**	**1.7**
208-96-8	Acenaphthylene	0.20	< 0.20 U
83-32-9	Acenaphthene	0.20	< 0.20 U
86-73-7	Fluorene	0.20	< 0.20 U
85-01-8	Phenanthrene	0.20	< 0.20 U
120-12-7	Anthracene	0.20	< 0.20 U
206-44-0	Fluoranthene	0.20	< 0.20 U
129-00-0	Pyrene	0.20	< 0.20 U
56-55-3	Benzo(a)anthracene	0.20	< 0.20 U
218-01-9	Chrysene	0.20	< 0.20 U
205-99-2	Benzo(b)fluoranthene	0.20	< 0.20 U
207-08-9	Benzo(k)fluoranthene	0.20	< 0.20 U
50-32-8	Benzo(a)pyrene	0.20	< 0.20 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.20	< 0.20 U
53-70-3	Dibenz(a,h)anthracene	0.20	< 0.20 U
191-24-2	Benzo(g,h,i)perylene	0.20	< 0.20 U
132-64-9	Dibenzofuran	0.20	< 0.20 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	69.3%
d14-Dibenzo(a,h)anthracene	54.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS

Sample ID: MW-1-031710
SAMPLE

Lab Sample ID: QP09C
LIMS ID: 10-7335
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 20:21
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**0.19**
91-57-6	**2-Methylnaphthalene**	**0.010**	**0.044**
90-12-0	**1-Methylnaphthalene**	**0.010**	**0.024**
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	Acenaphthene	0.010	< 0.010 U
86-73-7	Fluorene	0.010	< 0.010 U
85-01-8	Phenanthrene	0.010	< 0.010 U
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	Dibenzofuran	0.010	< 0.010 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	69.7%
d14-Dibenzo(a,h)anthracene	57.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS **Sample ID: MW-4-031710**
Page 1 of 1 **SAMPLE**

Lab Sample ID: QP09D
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 20:44
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**0.92**
91-57-6	**2-Methylnaphthalene**	**0.010**	**0.22**
90-12-0	**1-Methylnaphthalene**	**0.010**	**1.9 E**
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	**Acenaphthene**	**0.010**	**0.72**
86-73-7	**Fluorene**	**0.010**	**1.6 E**
85-01-8	**Phenanthrene**	**0.010**	**2.9 E**
120-12-7	**Anthracene**	**0.010**	**0.21**
206-44-0	**Fluoranthene**	**0.010**	**0.026**
129-00-0	**Pyrene**	**0.010**	**0.070**
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	**Dibenzofuran**	**0.010**	**0.96**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	81.7%
d14-Dibenzo(a,h)anthracene	46.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-4-031710
DILUTION

Lab Sample ID: QP09D
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/29/10 12:39
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 5.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.050**	**0.92**
91-57-6	**2-Methylnaphthalene**	**0.050**	**0.23**
90-12-0	**1-Methylnaphthalene**	**0.050**	**1.8**
208-96-8	Acenaphthylene	0.050	< 0.050 U
83-32-9	**Acenaphthene**	**0.050**	**1.2**
86-73-7	**Fluorene**	**0.050**	**2.2**
85-01-8	**Phenanthrene**	**0.050**	**2.9**
120-12-7	**Anthracene**	**0.050**	**0.19**
206-44-0	Fluoranthene	0.050	< 0.050 U
129-00-0	**Pyrene**	**0.050**	**0.069**
56-55-3	Benzo(a)anthracene	0.050	< 0.050 U
218-01-9	Chrysene	0.050	< 0.050 U
205-99-2	Benzo(b)fluoranthene	0.050	< 0.050 U
207-08-9	Benzo(k)fluoranthene	0.050	< 0.050 U
50-32-8	Benzo(a)pyrene	0.050	< 0.050 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.050	< 0.050 U
53-70-3	Dibenz(a,h)anthracene	0.050	< 0.050 U
191-24-2	Benzo(g,h,i)perylene	0.050	< 0.050 U
132-64-9	**Dibenzofuran**	**0.050**	**1.3**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	78.0%
d14-Dibenzo(a,h)anthracene	45.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-3-031710
SAMPLE

Lab Sample ID: QP09E
LIMS ID: 10-7337
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 21:08
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**0.96**
91-57-6	**2-Methylnaphthalene**	**0.010**	**0.28**
90-12-0	**1-Methylnaphthalene**	**0.010**	**0.12**
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	Acenaphthene	0.010	< 0.010 U
86-73-7	**Fluorene**	**0.010**	**0.020**
85-01-8	**Phenanthrene**	**0.010**	**0.016**
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	**Dibenzofuran**	**0.010**	**0.019**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	74.0%
d14-Dibenzo(a,h)anthracene	50.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-2-031810
SAMPLE

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized: B
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 21:32
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.010**	**6.2 ES**
91-57-6	**2-Methylnaphthalene**	**0.010**	**6.6 ES**
90-12-0	**1-Methylnaphthalene**	**0.010**	**4.2 ES**
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	**Acenaphthene**	**0.010**	**0.15**
86-73-7	**Fluorene**	**0.010**	**0.15**
85-01-8	**Phenanthrene**	**0.010**	**0.12**
120-12-7	**Anthracene**	**0.010**	**0.016**
206-44-0	**Fluoranthene**	**0.010**	**0.013**
129-00-0	**Pyrene**	**0.010**	**0.017**
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	**Dibenzofuran**	**0.010**	**0.053**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	NR
d14-Dibenzo(a,h)anthracene	31.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-2-031810
DILUTION

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/29/10 13:03
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.10**	**130 E**
91-57-6	**2-Methylnaphthalene**	**0.10**	**84 E**
90-12-0	**1-Methylnaphthalene**	**0.10**	**37 E**
208-96-8	Acenaphthylene	0.10	< 0.10 U
83-32-9	**Acenaphthene**	**0.10**	**0.15**
86-73-7	**Fluorene**	**0.10**	**0.13**
85-01-8	**Phenanthrene**	**0.10**	**0.12**
120-12-7	**Anthracene**	**0.10**	**0.11**
206-44-0	Fluoranthene	0.10	< 0.10 U
129-00-0	Pyrene	0.10	< 0.10 U
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
205-99-2	Benzo(b)fluoranthene	0.10	< 0.10 U
207-08-9	Benzo(k)fluoranthene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
191-24-2	Benzo(g,h,i)perylene	0.10	< 0.10 U
132-64-9	Dibenzofuran	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.7%
d14-Dibenzo(a,h)anthracene	30.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-2-031810
DILUTION2

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Date Extracted: 03/19/10
Date Analyzed: 03/29/10 13:51
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1000

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**10**	**400**
91-57-6	**2-Methylnaphthalene**	**10**	**110**
90-12-0	**1-Methylnaphthalene**	**10**	**48**
208-96-8	Acenaphthylene	10	< 10 U
83-32-9	Acenaphthene	10	< 10 U
86-73-7	Fluorene	10	< 10 U
85-01-8	Phenanthrene	10	< 10 U
120-12-7	Anthracene	10	< 10 U
206-44-0	Fluoranthene	10	< 10 U
129-00-0	Pyrene	10	< 10 U
56-55-3	Benzo(a)anthracene	10	< 10 U
218-01-9	Chrysene	10	< 10 U
205-99-2	Benzo(b)fluoranthene	10	< 10 U
207-08-9	Benzo(k)fluoranthene	10	< 10 U
50-32-8	Benzo(a)pyrene	10	< 10 U
193-39-5	Indeno(1,2,3-cd)pyrene	10	< 10 U
53-70-3	Dibenz(a,h)anthracene	10	< 10 U
191-24-2	Benzo(g,h,i)perylene	10	< 10 U
132-64-9	Dibenzofuran	10	< 10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	D
d14-Dibenzo(a,h)anthracene	D

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714

Client ID	MNP	DBA	TOT OUT
MB-031910	83.0%	60.0%	0
LCS-031910	82.0%	66.3%	0
LCSD-031910	72.7%	53.7%	0
MW-5-031710	66.7%	35.7%	0
MW-5-031710 DL	62.3%	34.5%	0
MW-5-031710-FD	66.7%	51.0%	0
MW-5-031710-FD DL	69.3%	54.7%	0
MW-1-031710	69.7%	57.0%	0
MW-4-031710	81.7%	46.0%	0
MW-4-031710 DL	78.0%	45.2%	0
MW-3-031710	74.0%	50.3%	0
MW-2-031810	NR	31.0%	0
MW-2-031810 DL	57.7%	30.9%	0
MW-2-031810 DL2	D	D	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(42-100)	(31-109)
(DBA) = d14-Dibenzo(a,h)anthracene	(40-125)	(10-133)

Prep Method: SW3520C
Log Number Range: 10-7333 to 10-7338

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS **Sample ID: LCS-031910**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-031910
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 03/19/10

Date Analyzed LCS: 03/27/10 14:25
LCSD: 03/27/10 14:49
Instrument/Analyst LCS: NT8/YZ
LCSD: NT8/YZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	0.219	0.300	73.0%	0.202	0.300	67.3%	8.1%
2-Methylnaphthalene	0.243	0.300	81.0%	0.222	0.300	74.0%	9.0%
1-Methylnaphthalene	0.238	0.300	79.3%	0.215	0.300	71.7%	10.2%
Acenaphthylene	0.231	0.300	77.0%	0.211	0.300	70.3%	9.0%
Acenaphthene	0.234	0.300	78.0%	0.214	0.300	71.3%	8.9%
Fluorene	0.269	0.300	89.7%	0.239	0.300	79.7%	11.8%
Phenanthrene	0.240	0.300	80.0%	0.210	0.300	70.0%	13.3%
Anthracene	0.190	0.300	63.3%	0.170	0.300	56.7%	11.1%
Fluoranthene	0.251	0.300	83.7%	0.221	0.300	73.7%	12.7%
Pyrene	0.238	0.300	79.3%	0.217	0.300	72.3%	9.2%
Benzo(a)anthracene	0.258	0.300	86.0%	0.240	0.300	80.0%	7.2%
Chrysene	0.191 Q	0.300	63.7%	0.172 Q	0.300	57.3%	10.5%
Benzo(b)fluoranthene	0.306	0.300	102%	0.264	0.300	88.0%	14.7%
Benzo(k)fluoranthene	0.186	0.300	62.0%	0.164	0.300	54.7%	12.6%
Benzo(a)pyrene	0.186	0.300	62.0%	0.175	0.300	58.3%	6.1%
Indeno(1,2,3-cd)pyrene	0.185	0.300	61.7%	0.153	0.300	51.0%	18.9%
Dibenz(a,h)anthracene	0.197	0.300	65.7%	0.165	0.300	55.0%	17.7%
Benzo(g,h,i)perylene	0.174	0.300	58.0%	0.145	0.300	48.3%	18.2%
Dibenzofuran	0.256	0.300	85.3%	0.230	0.300	76.7%	10.7%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	82.0%	72.7%
d14-Dibenzo(a,h)anthracene	66.3%	53.7%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

QO74MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: K&S

ARI Job No: QP09 Project: Q58

Lab File ID: QO74MB Date Extracted: 03/19/10

Instrument ID: NT8 Date Analyzed: 03/27/10

Matrix: LIQUID Time Analyzed: 1402

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	QO74LCSW1	QO74LCSW1	QO74SB	03/27/10
02	QO74LCSDW1	QO74LCSDW1	QO74SBD	03/27/10
03	MW-5-031710	QP09A	QP09A	03/27/10
04	MW-5-031710-FD	QP09B	QP09B	03/27/10
05	MW-1-031710	QP09C	QP09C	03/27/10
06	MW-4-031710	QP09D	QP09D	03/27/10
07	MW-3-031710	QP09E	QP09E	03/27/10
08	MW-2-031810	QP09F	QP09F	03/27/10
09	MW-5-031710	QP09A	QP09A3	03/29/10
10	MW-5-031710-FD	QP09B	QP09B20	03/29/10
11	MW-4-031710	QP09D	QP09D5	03/29/10
12	MW-2-031810	QP09F	QP09F10	03/29/10
13	MW-2-031810	QP09F	QP09F1000	03/29/10
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by Low Level SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MB-031910
METHOD BLANK

Lab Sample ID: MB-031910
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: NA
Date Received: NA

Date Extracted: 03/19/10
Date Analyzed: 03/27/10 14:02
Instrument/Analyst: NT8/YZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	0.010	< 0.010 U
91-57-6	2-Methylnaphthalene	0.010	< 0.010 U
90-12-0	1-Methylnaphthalene	0.010	< 0.010 U
208-96-8	Acenaphthylene	0.010	< 0.010 U
83-32-9	Acenaphthene	0.010	< 0.010 U
86-73-7	Fluorene	0.010	< 0.010 U
85-01-8	Phenanthrene	0.010	< 0.010 U
120-12-7	Anthracene	0.010	< 0.010 U
206-44-0	Fluoranthene	0.010	< 0.010 U
129-00-0	Pyrene	0.010	< 0.010 U
56-55-3	Benzo(a)anthracene	0.010	< 0.010 U
218-01-9	Chrysene	0.010	< 0.010 U
205-99-2	Benzo(b)fluoranthene	0.010	< 0.010 U
207-08-9	Benzo(k)fluoranthene	0.010	< 0.010 U
50-32-8	Benzo(a)pyrene	0.010	< 0.010 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.010	< 0.010 U
53-70-3	Dibenz(a,h)anthracene	0.010	< 0.010 U
191-24-2	Benzo(g,h,i)perylene	0.010	< 0.010 U
132-64-9	Dibenzofuran	0.010	< 0.010 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	83.0%
d14-Dibenzo(a,h)anthracene	60.0%

TPHG ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/17/10
Date Received: 03/19/10

ARI ID	Client ID	Analysis Date	DL	Range	Result
MB-032910 10-7333	Method Blank	03/29/10 PID3	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 89.0% 92.5%
QP09A 10-7333	MW-5-031710	03/29/10 PID3	1.0	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**0.33** GRO 96.0% 98.2%
QP09B 10-7334	MW-5-031710-FD	03/29/10 PID3	1.0	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**0.32** GRO 96.3% 97.5%
QP09C 10-7335	MW-1-031710	03/29/10 PID3	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 96.1% 98.4%
QP09D 10-7336	MW-4-031710	03/29/10 PID3	10	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**28** GAS/GRO 92.1% 96.5%
QP09E 10-7337	MW-3-031710	03/29/10 PID3	1.0	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**0.56** GAS/GRO 96.7% 98.5%
QP09F 10-7338	MW-2-031810	03/29/10 PID3	50	**Gasoline** HC ID Trifluorotoluene Bromobenzene	**160** GAS/GRO 91.1% 96.4%
QP09G 10-7339	Trip Blanks	03/29/10 PID3	1.0	Gasoline HC ID Trifluorotoluene Bromobenzene	< 0.25 U --- 97.5% 97.0%

Gasoline values reported in mg/L (ppm)

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: QP09
Matrix: Water

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714

Client ID	TFT	BBZ	TOT OUT
MB-032910	89.0%	92.5%	0
LCS-032910	95.2%	96.2%	0
LCSD-032910	96.7%	99.1%	0
MW-5-031710	96.0%	98.2%	0
MW-5-031710-FD	96.3%	97.5%	0
MW-1-031710	96.1%	98.4%	0
MW-4-031710	92.1%	96.5%	0
MW-3-031710	96.7%	98.5%	0
MW-2-031810	91.1%	96.4%	0
MW-2-031810 MS	92.1%	94.8%	0
MW-2-031810 MSD	90.9%	94.6%	0
Trip Blanks	97.5%	97.0%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 10-7333 to 10-7339

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: MW-2-031810
MATRIX SPIKE

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Date Analyzed MS: 03/29/10 22:35
MSD: 03/29/10 23:00
Instrument/Analyst MS: PID3/MH
MSD: PID3/MH

Purge Volume: 5.0 mL

Dilution Factor MS: 50
MSD: 50

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	162	207	50.0	90.0%	202	50.0	80.0%	2.4%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	92.1%	90.9%
Bromobenzene	94.8%	94.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-032910
LAB CONTROL SAMPLE

Lab Sample ID: LCS-032910
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 03/31/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
Event: 188714
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 03/29/10 10:46
LCSD: 03/29/10 11:10
Instrument/Analyst LCS: PID3/MH
LCSD: PID3/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1.06	1.00	106%	1.04	1.00	104%	1.9%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	95.2%	96.7%
Bromobenzene	96.2%	99.1%

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.: MB0329S1

Lab Name: ANALYTICAL RESOURCES, INC
Client: SCIENCE AAPP. INTERNATIONAL CO

SDG No.: QP09
Project No.: BLAINE MINI MART

Date Analyzed : 03/29/10
Matrix: WATER

Time Analyzed : 1135
Instrument ID : PID3

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS0329S1	LCS0329	03/29/10
02	LCSD0329S1	LCSD0329	03/29/10
03	TRIP BLANKS	QP09G	03/29/10
04	MW-5-031710	QOP9A	03/29/10
05	MW-5-031710-	QP09B	03/29/10
06	MW-1-031710	QP09C	03/29/10
07	MW-3-031710	QP09E	03/29/10
08	MW-4-031710	QP09D	03/29/10
09	MW-2-031810	QP09F	03/29/10
10	MW-2-031810	QP09FMS	03/29/10
11	MW-2-031810	QP09FMSD	03/29/10
12			
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TPHD ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Water

QC Report No: QP09-Science App. Internationa
Project: Blaine Mini Mart
188714

Data Release Authorized: VB
Reported: 03/30/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-032310	Method Blank	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7333	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		97.2%
QP09A	MW-5-031710	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7333	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		92.7%
QP09B	MW-5-031710-FD	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7334	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		95.6%
QP09C	MW-1-031710	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7335	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		96.8%
QP09D	MW-4-031710	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7336	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		101%
QP09E	MW-3-031710	03/23/10	03/25/10	1.00	Diesel	0.25	< 0.25 U
10-7337	HC ID: ---		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		95.0%
QP09F	MW-2-031810	03/23/10	03/25/10	1.00	**Diesel**	**0.25**	**0.75**
10-7338	HC ID: **DIESEL**		FID9	1.0	Motor Oil	0.50	< 0.50 U
					o-Terphenyl		89.6%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

FORM I

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714

Client ID	OTER	TOT OUT
MB-032310	97.2%	0
LCS-032310	83.0%	0
LCSD-032310	101%	0
MW-5-031710	92.7%	0
MW-5-031710-FD	95.6%	0
MW-1-031710	96.8%	0
MW-4-031710	101%	0
MW-3-031710	95.0%	0
MW-2-031810	89.6%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(51-120)	(41-121)

Prep Method: SW3510C
Log Number Range: 10-7333 to 10-7338

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-032310**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-032310
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized: VB
Reported: 03/30/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Date Extracted LCS/LCSD: 03/23/10

Date Analyzed LCS: 03/25/10 18:08
LCSD: 03/25/10 18:28
Instrument/Analyst LCS: FID/MS
LCSD: FID/MS

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2.59	3.00	86.3%	2.54	3.00	84.7%	1.9%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	83.0%	101%

Results reported in mg/L
RPD calculated using sample concentrations per SW846.

FORM III

TPH METHOD BLANK SUMMARY

BLANK NO.

QP09MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: SAIC

SDG No.: QP09 Project No.: BLAINE

Date Extracted: 03/23/10 Matrix: LIQUID

Date Analyzed : 03/25/10 Instrument ID : FID9

Time Analyzed : 1749

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	QP09LCSW1	QP09LCSW1	03/25/10
02	QP09LCSDW1	QP09LCSDW1	03/25/10
03	MW-5-031710	QP09A	03/25/10
04	MW-5-031710-	QP09B	03/25/10
05	MW-1-031710	QP09C	03/25/10
06	MW-4-031710	QP09D	03/25/10
07	MW-3-031710	QP09E	03/25/10
08	MW-2-031810	QP09F	03/25/10
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FORM IV TPH

METALS ANALYSIS

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-5-031710
SAMPLE

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-5-031710
MATRIX SPIKE

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	0.02 U	2.02	2.00	101%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-5-031710
DUPLICATE

Lab Sample ID: QP09A
LIMS ID: 10-7333
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	0.02 U	0.02 U	0.0%	+/- 0.02	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

FORM-VI

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-5-031710-FD
SAMPLE

Lab Sample ID: QP09B
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-1-031710
SAMPLE

Lab Sample ID: QP09C
LIMS ID: 10-7335
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: MW-4-031710
SAMPLE

Lab Sample ID: QP09D
LIMS ID: 10-7336
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-3-031710
SAMPLE

Lab Sample ID: QP09E
LIMS ID: 10-7337
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-2-031810
SAMPLE

Lab Sample ID: QP09F
LIMS ID: 10-7338
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: QP09LCS
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	1.96	2.00	98.0%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: QP09MB
LIMS ID: 10-7334
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U~Analyte undetected at given RL
RL~Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5-031710
SAMPLE

Lab Sample ID: QP09H
LIMS ID: 10-7340
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5-031710
MATRIX SPIKE

Lab Sample ID: QP09H
LIMS ID: 10-7340
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	0.02 U	2.01	2.00	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: MW-5-031710
DUPLICATE

Lab Sample ID: QP09H
LIMS ID: 10-7340
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	0.02 U	0.02 U	0.0%	+/- 0.02	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: MW-5-031710-FD
SAMPLE

Lab Sample ID: QP09I
LIMS ID: 10-7341
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1-031710
SAMPLE

Lab Sample ID: QP09J
LIMS ID: 10-7342
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-4-031710
SAMPLE

Lab Sample ID: QP09K
LIMS ID: 10-7343
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-3-031710
SAMPLE

Lab Sample ID: QP09L
LIMS ID: 10-7344
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/17/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-2-031810
SAMPLE

Lab Sample ID: QP09M
LIMS ID: 10-7345
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: 03/18/10
Date Received: 03/19/10

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: QP09LCS
LIMS ID: 10-7341
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	1.99	2.00	99.5%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

FORM-VII

QP09:00051

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: QP09MB
LIMS ID: 10-7341
Matrix: Water
Data Release Authorized:
Reported: 04/06/10

QC Report No: QP09-Science App. International Corp
Project: Blaine Mini Mart
188714
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
6010B	03/19/10	6010B	04/05/10	7439-92-1	Lead	0.02	0.02	U

U-Analyte undetected at given RL
RL-Reporting Limit

QP09 : 00092

Appendix E
Site Survey Map – March 2010

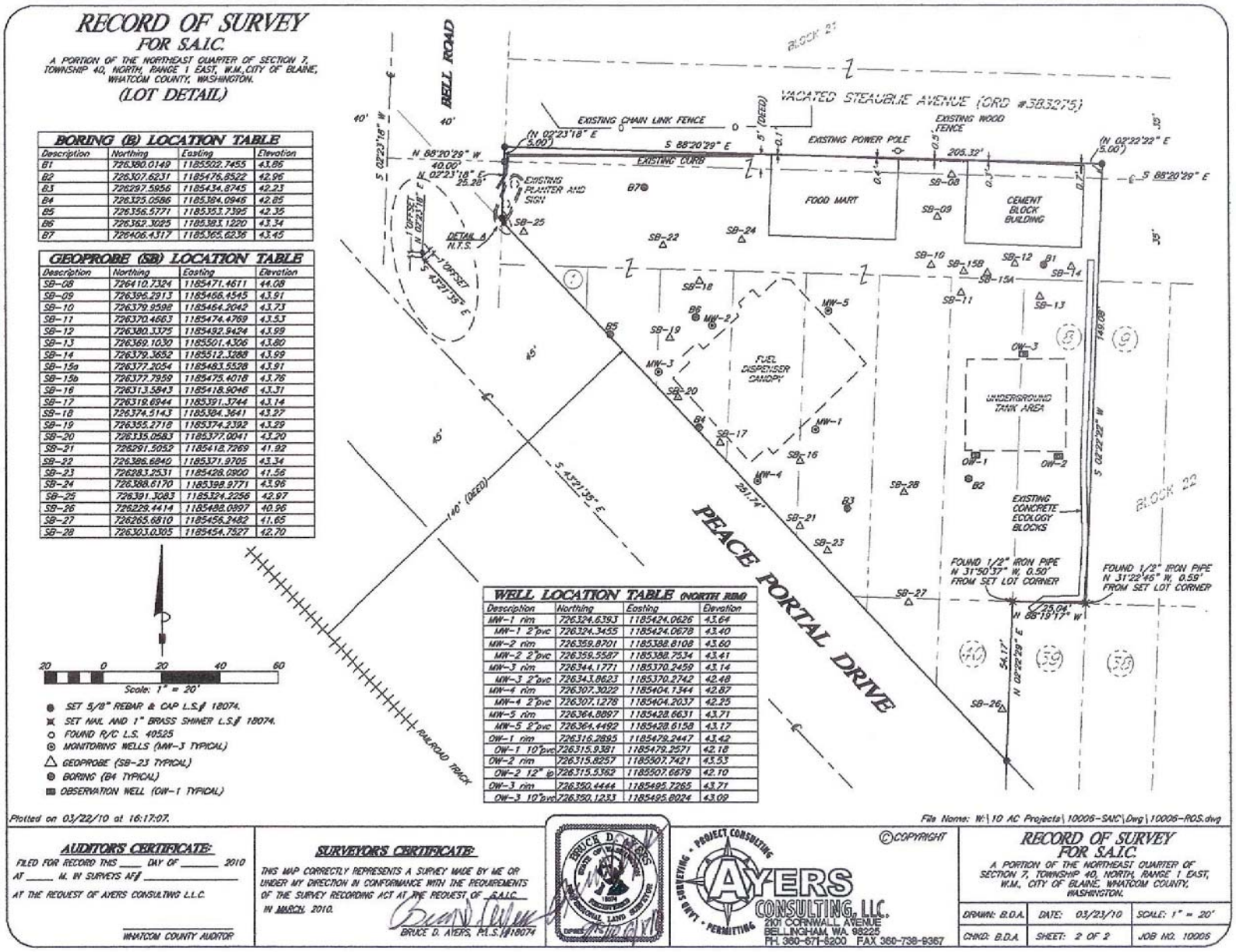


Figure E-1. Survey Map for the Blaine Mini Mart Site