Ahtna
Engineering Services, LLC

TANANA COMMUNITY HALL
BROWNFIELD ASSESSMENT REPORT
MARCH 2017
FINAL

Prepared for:

ALASKA
Department of
Environmental
Conservation

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APPROVAL PAGE

This report describing the Brownfield Assessment of the Tanana Community Hall site in Tanana, Alaska has been prepared for the Alaska Department of Environmental Conservation by Ahtna Engineering Services, LLC, with support from teaming partner Arctic Data Services, LLC.

ADEC Hazard ID: 26250
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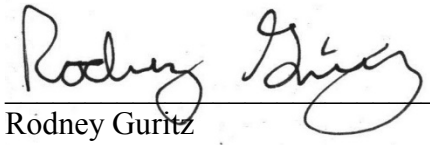

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ACRONYMS AND ABBREVIATIONS

µg/kg .....micrograms per kilogram
µg/L.....micrograms per liter
AAC .....Alaska Administrative Code
ADEC.....Alaska Department of Environmental Conservation
ADS.....Arctic Data Services, LLC
Ahtna.....Ahtna Engineering Services, LLC
As .....arsenic
bgs .....below ground surface
BTEX .....benzene, toluene, ethylbenzene, and xylenes
COPC .....contaminant of potential concern
cy.....cubic yard
DQA .....data quality assessment
DRO .....diesel range organics
ft .....feet
GeoTek.....GeoTek Alaska, Inc.
GRO .....gasoline range organics
GWCL.....groundwater cleanup level
in .....inch
LOD .....limit of detection
mg/kg .....milligrams per kilogram
MSWLF .....Municipal Solid Waste Landfill
NTP .....notice to proceed
PACP.....property assessment and cleanup plan
PAH.....polycyclic aromatic hydrocarbons
PCB .....polychlorinated biphenyl
PID .....photoionization detector
ppm .....parts per million
RCRA.....Resource Conservation and Recovery Act
RRO .....residual range organics
S&W .....Shannon & Wilson, Inc.
SCL .....soil cleanup level
SDG.....sample delivery group
sq.....square
TP.....test pit
TTC .....Tanana Tribal Council
TWP .....temporary well point

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1.0 INTRODUCTION

Under Notice-to-Proceed (NTP) CT 17-0000054 and Contract Number 18-8036-13 from the Alaska Department of Environmental Conservation (ADEC), Ahtna Engineering Services, LLC (Ahtna) has conducted a Brownfield Assessment at the Tanana Community Hall site to characterize impacts to soil and groundwater from historical releases of Bunker C contamination and delineate any remaining fuel transfer piping. The site is located in Tanana, Alaska and is a vacant lot comprising Lot 7, Block 11, Section 17, Township 4 North, Range 22 West, Fairbanks Meridian (Figures 1 and 2). The site has a Hazard ID of 26250 and an ADEC file number of 780.57.004. This report describes field activities that occurred in August 2016, including a site reconnaissance/outreach visit, soil and groundwater sampling for contaminants of potential concern (COPCs), and a piping investigation. It includes this introductory section, a summary of field activities and results, a quality assurance review, a summary of findings and conclusions, and provides recommendations for additional investigation and site remediation.

1.1 Background

The Tanana Community Hall site is comprised of a vacant lot at the intersection of First Avenue and Koyukuk Street (Figure 2). The lot is owned by the Tanana Tribal Council (TTC) and is currently used as parking for the adjacent community hall, as well as for outdoor community gatherings.

Contamination was identified at the site by the City of Tanana in 2013 while digging a drainage ditch along the southern boundary of Lot 7, Block 11. Following discovery of the soil contamination and a successful ADEC Brownfields Assessment and Cleanup application from the TTC, ADEC contracted Shannon & Wilson, Inc. (S&W) to prepare a property assessment and cleanup plan (PACP) for the site (S&W, 2015). The PACP included historical research, records review, local interviews, and a limited field investigation which partially delineated soil contamination using shallow test pits and trenches. A summary of findings from the PACP is presented in the *Tanana Community Hall Brownfield Assessment Work Plan* (Ahtna, 2016). Additional delineation of the vertical and horizontal extents of contamination was warranted and is the focus of this report.

Contamination at the site is likely attributable to releases of Bunker C fuel, used for historical barge operations along the Yukon and Tanana rivers. The COPCs at the site are:

- Residual range organics (RRO)
- Diesel range organics (DRO)
- Gasoline range organics (GRO)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX)
- Polycyclic aromatic hydrocarbons (PAHs)

In addition to the COPCs listed above, Resource Conservation and Recovery Act (RCRA) metals and polychlorinated biphenyls (PCBs) are COPCs, given that co-contamination of Bunker C fuel with these constituents is possible and PCB containing oil was reportedly used for dust control on roadways throughout Tanana in the past.

1.2 Objectives

The project objectives were to delineate the horizontal and vertical extents of Bunker C contamination present at the site; evaluate whether groundwater in the vicinity of the site has been impacted by contaminant migration; and to investigate whether fuel transfer piping is present at the site, and delineate its extent if present. Based on the findings of these investigations, the final project objective was to provide recommendations for additional work to delineate the nature and extent of contamination and identify potential sources.

1.3 Scope of Work

The original scope of work outlined in the NTP included the following tasks:

- Advance and sample at least seven shallow test pits (TPs) to 3 feet (ft) below ground surface (bgs) in areas of potential contamination. Analytes for soil samples included DRO, RRO, BTEX, and PAHs.
- Advance and sample three deep soil borings to groundwater, a maximum depth of 35 ft, or refusal, whichever is encountered first.
- Install, develop, sample, and remove three temporary well points (TWPs), co-located with deep soil borings. Analytes for groundwater samples included DRO, RRO, GRO, BTEX, and PAHs.
- Investigate whether fuel distribution piping is present on or near the property.
- Report field observations, findings, analytical results, conclusions, and recommendations.

The NTP was modified to include the use of a direct-push drill rig to complete the soil and groundwater investigations and the additional analyses of six soil samples for DRO and RRO and three soil samples for RCRA metals and PCBs.

1.4 Regulatory Framework

The regulatory framework for this project was developed under consideration of the following regulations and guidance documents:

- 18 Alaska Administrative Code (AAC) 75, Oil and Other Hazardous Substances Pollution Control, November 6, 2016.
- Policy Guidance on Developing Conceptual Site Models (CSM), ADEC Division of Spill Prevention and Response, Contaminated Sites Program, October 2010.
- Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, ADEC Division of Spill Prevention and Response, Contaminated Sites Program, September 23, 2009.
- Field Sampling Guidance, ADEC Division of Spill Prevention and Response, Contaminated Sites Program, March 2016.

Soil analytical results were compared to the most conservative Method Two soil cleanup levels (SCLs) for the "Under 40 Inch Zone" or "Migration to Groundwater" from Tables B1 and B2 of 18 AAC 75.341, effective November 6, 2016. Groundwater analytical results are compared to groundwater cleanup levels (GWCLs) from Table C of 18 AAC 75.345. Table 1 lists the cleanup

levels for the COPCs associated with the Bunker C contamination at the site. For PAHs, only those detected above cleanup levels in 2016 are listed for brevity.

TABLE 1: CLEANUP LEVELS FOR CONTAMINANTS OF POTENTIAL CONCERN

Compound	SCL (mg/kg)	GWCL (µg/L)
GRO	300*	2,200
DRO	250	1,500
RRO	10,000	1,100
Benzene	0.022	4.6
Toluene	6.7	1,100
Ethylbenzene	0.13	15
Xylenes (total)	1.5	190
1-Methylnaphthalene	0.41	11
2-Methylnaphthalene	1.3	36
Acenaphthene	37	530
Benzo(a)anthracene	0.28	0.12
Benzo(a)pyrene	0.20	0.034
Benzo(b)fluoranthene	2.0	0.34
Naphthalene	0.038	1.7
Arsenic	0.20	0.52*
Barium	2,100	3,800*
Cadmium	9.1	9.2*
Chromium (III)	100,000	22,000*
Lead	400	15*
Mercury	0.36	0.52*
Selenium	6.9	100*
Silver	11	94*
PCBs (total)	1.0	0.50*

Notes: mg/kg = milligrams per kilogram, µ/L = micrograms per liter
* = not included in this field program

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2.0 FIELD ACTIVITIES

This section describes the field activities performed by Ahtna and its teaming partner, Arctic Data Services (ADS) in August 2016. A preliminary site visit was conducted August 17, 2016 and field work was completed from August 23-25, 2016. All fieldwork and all field and laboratory quality assurance criteria for this project were conducted in accordance with the project work plan (Ahtna, 2016) and applicable ADEC procedures. The site visit was conducted by Rodney Guritz (ADS) and fieldwork was performed by Leslie Davis (Ahtna), both of whom are qualified environmental professionals as defined in 18 AAC 75.333.

The field logbook and data sheets document all field activities and are included as Appendix A. Photographs are presented in Appendix B. Finalized soil boring and test pit logs are in Appendix C.

2.1 Preliminary Site Visit

The objective of the site visit performed by ADS on August 17, 2016 was to coordinate with the land owners and local stakeholders and conduct a site walk-through to identify buried utilities and identify test pit locations. An Alaska Digline utility locate was submitted prior to conducting subsurface investigations. A sewer and water utility line operated by Too'gha utilities was located along the centerline of First Avenue and Koyukuk Street. The telephone provider, United Utilities, Inc., had an operator in the village, but did not have equipment to locate the telephone line. Ahtna made arrangements for the utility locate to be completed during the field sampling event.

A preliminary piping investigation was performed by beginning at the fuel pump located south of First Avenue (see Figure 2) and using a magnetometer to track the associated fuel lines. A linear signal was observed from the pump toward the site, but faded approximately 20 ft from the pump, prior to the road crossing (Site Sketch, Appendix A). No linear signals were observed north of the road within the site boundary. ADS investigated south of the pump station at the base of the Yukon River bank where they found remnants of 4 inch (in) diameter flexible hose and pipe fittings, but no permanent piping.

2.2 Shallow Test Pits

Ahtna returned to Tanana on August 23, 2016 and performed field sampling as outlined in the project work plan. Prior to subsurface work at the site, United Utilities, Inc. performed a utility locate and identified a buried communications line along the north side of First Avenue.

Ahtna excavated 14 shallow TPs to a depth of 3 ft bgs in most locations (Figure 2). Each TP was approximately 3 ft wide by 3 ft long. Four TP locations (TP-01, TP-02, TP-03, TP-13) were within the known area of Bunker C contamination, with excavations extending to at least one foot below the observed contamination layer. The remaining TP locations were placed to delineate the horizontal extent of contamination: three locations south of First Avenue, two locations west of Koyukuk Street, and five locations within Lots 7 and 8, Block 11 (Figure 2). Where no Bunker C contamination was observed, TPs were excavated to a depth of 2.5 to 3.0 ft bgs.

The City of Tanana provided a backhoe and operator for the excavation of shallow TPs on August 23, 2016 (Photo 1). Three test pits, TP-12, TP-13, and TP-14, were hand-dug to further refine the southwest extent of contamination after the backhoe was offsite on August 24, 2016.

During S&W's 2014 investigation, the Bunker C contamination layer did not register readings above background on a photoionization detector (PID). However, benzene concentrations were detected in analytical samples collected from directly below the visibly contaminated area at 0.75 ft bgs (S&W, 2015). Therefore, Ahtna collected soil samples for field screening using a MiniRAE 2000 PID from at least one location in each TP to screen for potential volatile contaminants. Unless otherwise noted, screening samples were collected from approximately one foot below the visible contaminated layer. The screening samples were collected directly from the TP sidewalls into disposable, quart-sized Ziploc® plastic bags. Bags were filled one-third to one-half full and warmed to at least 40 degrees Fahrenheit prior to screening. The PID screening results are presented in Table 2, Section 3.1.

Per the work plan, three samples and a duplicate were collected from the visibly contaminated layer to confirm 2014 results and support correlation of analytical results with visual observation. Four samples were collected from soil approximately one foot beneath the observed Bunker C contamination. The remaining eight samples were collected from TPs beyond the visibly contaminated area to the north, south, east, and west at a depth of 1.0 to 1.5 ft bgs, with the exception of TP-09. At location TP-09, the sample was collected at a depth of 2.1 to 2.3 ft bgs to account for the additional gravel fill associated with Koyukuk Street.

Analytical samples were collected using the discrete grab sampling procedures described in the work plan and ADEC's *Field Sampling Guidance.* Sampling was conducted with disposable stainless steel spoons to prevent cross-contamination. Samples were collected in order of decreasing volatility. For volatile analytes (BTEX), a target sample mass of 25-30 grams was collected and immediately preserved with 25 milliliters of methanol. For semi-volatile or non-volatile analyses (DRO, RRO, PAH, PCB, RCRA metals) sample jars were filled completely, leaving no headspace.

2.3 Soil Borings

On August 24, 2016, three soil borings were driven to a depth of 20 ft bgs using a Geoprobe® 6620 DT series direct push drill rig operated by GeoTek Alaska, Inc. (GeoTek). Two-inch diameter Geoprobe® continuous core samplers with polyethylene liners were used to collect soil cores in 5 ft intervals. Soil borings were advanced to groundwater, which was encountered at approximately 20 ft bgs. Soil boring logs are included in Appendix C. Soil cores were opened and in-situ PID field screening was performed at one foot intervals. Analytical soil samples were collected with disposable stainless steel spoons and following procedures described in the work plan and ADEC's *Field Sampling Guidance.*

Within the source area at SB-03, one sample was collected from the Bunker C contamination layer at a depth of 1.6 to 1.8 ft bgs, and one sample was collected from a depth of 5.5 to 6.0 ft bgs to confirm vertical delineation (Figure 2). A duplicate sample was also collected from the 5.5 to 6.0 ft bgs interval. At the two soil boring locations across First Avenue, SB-02 and SB-03, samples

were collected from the smear zone at the groundwater interface (18.3 to 18.7 ft bgs and 19.0 to 19.6 ft bgs, respectively). Soil boring samples were submitted for analysis of DRO and RRO.

Following sample collection, soil borings were filled with bentonite to a least one foot above the groundwater depth and backfilled to the surface with soil cuttings from the sample cores.

2.4 Temporary Well Points

Three TWPs were installed on August 25, 2016 at locations co-located with the deep soil borings (Figure 2).

Using the Geoprobe® 6620 DT series direct push drill rig, SP-16® groundwater samplers were used to advance TWPs to the desired sampling depths. At TWP-01 and TWP-02, the sampler was advanced to 25 ft bgs. The samplers were then pulled up to expose the 41-in long, stainless steel screen to groundwater. Prior to sampling, the TWPs were developed using a peristaltic pump surging along the length of the screen until the purge water was visibly free of sediment.

At location TWP-03, the SP-16® tooling was initially advanced to 14 ft bgs to capture a potential elevated water table based on saturated soil observations from SB-03. The attempt to purge water from the TWP was unsuccessful. It is assumed the saturated layer observed at SB-03 was a result of a frozen soil layer that had melted before the core could be profiled. The TWP tooling was removed and the boring was backfilled with cuttings to the surface. The drill rig was re-positioned approximately one foot away and the decontaminated SP-16® groundwater sampler was driven to 25 ft bgs, consistent with the other TWP depths. Groundwater was encountered and the TWP was successfully developed and subsequently sampled.

Groundwater samples were submitted for analysis of DRO, RRO, GRO, BTEX, and PAHs. Following sample collection, the well points were removed and decommissioned as outlined in the work plan.

2.5 Piping Investigation

Ahtna conducted a piping investigation utilizing a magnetometer to determine whether any fuel piping was present on Lot 7. Observations of piping near the pump made during the initial site visit were confirmed; an approximately 20 ft long linear signal was observed from the pump toward the site, but faded prior to the road crossing.

A 10-foot by 10-foot grid was established over the southern half of Lot 7, Block 11 and scanned with the magnetometer. Positive signals were marked and investigated to determine whether they were linear in nature. Observations and a site sketch were documented in the field notebook (Appendix A).

2.6 Waste Management

Excavated soils from the TP locations were used as backfill following sampling at each location. Soil from the deep soil borings was used to backfill the individual borings to surface grade. Efforts were made to place the soil back to the depth where it originated from.

Purge water and drill tooling decontamination water was treated onsite with granular activated carbon and discharged to the ground surface. Disposable sampling supplies, including nitrile gloves, bags, soil core liners, and paper towels were bagged and disposed of at the Tanana Landfill.

3.0 OBSERVATIONS AND RESULTS

This section presents the field screening and analytical results from soil and groundwater samples collected at the site from August 23 to 25, 2016. Observations and results from the piping investigation are also included. The TP locations and results are illustrated on Figures 2 and 3. Photographs are presented in Appendix B. Analytical laboratory results are included as Appendix D.

3.1 Soil Test Pit Observations

Bunker C fuel oil contamination was observed in the southern portion of the Lot 7, Block 11 property boundary in a distinct 2 to 6 in thick layer at approximately 0.5 to 1.5 ft bgs. The TPs with this visibly contaminated layer included TP-01, TP-02, TP-03, and TP-14.

At TP-01, the tar layer was approximately 6 in thick on the west sidewall (Photo 2) and approximately 4 in think on the north sidewall (Photo 3). A 2.5 ft long, 2-in diameter metal pipe was observed partially buried to a depth of 1 ft bgs. A few small pieces of wood debris were observed in the pit.

During the excavation of TP-03, tar covered, 4 in thick wooden planks were encountered at approximately 1 ft bgs (Photo 4). Soil contaminated with Bunker C was observed both directly above and below the planks (Photo 5). Below the wooden plank, the tar layer was approximately 6 in thick. A strong hydrocarbon fuel odor was noted during the excavation at this location.

TP-02 had a relatively narrow tar layer, approximately 0.2 in thick at 1.0 to 1.2 bgs, when compared to the other TPs within the visibly contaminated area. No wood debris was observed at this location. A slight diesel odor was noted during excavation.

TP-13 and TP-14 were excavated by hand using a shovel. At TP-14, the tar layer was approximately 4 in thick. At TP-13, a dark layer of charred wood debris was observed from 1.0 to 1.4 ft bgs. However, the oily tar characteristics were not present in this layer.

No visible contamination was observed in the remaining TP locations.

Within the southern portion of Lot 7, Block 11, significant sheen was observed on the ground surface following rains during the field event.

3.2 Soil Field Screening

Field screening of TPs and deep soil borings was performed using a MiniRAE 2000 PID following procedures outlined in the work plan. All soil boring PID screening results were less than 1.5 parts per million (ppm) (Appendix C). Table 2 presents the results of field screening conducted at the shallow TP locations.

TABLE 2: SHALLOW TEST PIT PID SCREENING RESULTS

Location	Depth (ft bgs)	PID Result* (ppm)	Description	Associated Sample ID
TP-01	1.6	0.3	West sidewall; below tar layer	-
TP-02	2.0	**113**	North sidewall; one foot below tar layer	16-TAL-TP-02-2.2-2.5
TP-03	2.0	**60.1**	South sidewall; below tar layer	-
TP-04	2.0	3.3	East sidewall; no tar layer observed	16-TAL-TP-04-1.0-1.2
TP-05	1.5	1.1	North sidewall; no tar layer observed	16-TAL-TP-05-1.0-1.2
TP-06	1.8	1.6	North sidewall; no tar layer observed	16-TAL-TP-06-1.3-1.5
TP-07	1.8	0.9	South sidewall; no tar layer observed	16-TAL-TP-07-1.4-1.5
TP-08	1.5	0.7	East sidewall; no tar layer observed	16-TAL-TP-08-1.2-1.3
TP-09	2.0	0.8	East sidewall; no tar layer observed	16-TAL-TP-09-2.1-2.3
TP-10	1.5	0.7	East sidewall; no tar layer observed	16-TAL-TP-10-1.0-1.2
TP-11	1.8	0.6	North sidewall; no tar layer observed	16-TAL-TP-11-1.5-1.7
TP-12	1.8	0.1	East sidewall; no tar layer observed	-
TP-13	1.0 - 1.4	0.1	Directly from charred wood layer; no tar layer observed	-
	1.9	0.1	Below charred wood layer; no tar layer observed	-
TP-14	1.0	**62.5**	Directly from tar layer	-

*Elevated PID results are in bold
ft bgs = feet below ground surface
PID = photoionization detector
ppm = parts per million

Elevated PID results were observed at TP-02, TP-03, and from a screening sample collected directly from the tar layer at TP-14.

The highest PID reading (113 ppm) was observed at TP-02 at a depth of 2.0 ft bgs. As a result of the elevated PID reading, a co-located analytical soil sample was collected for DRO, RRO, PAH, BTEX, PCB, and metals. As noted in Section 3.2, TP-02 had a relatively narrow tar layer approximately 0.2 in thick at 1.0 to 1.2 bgs, when compared to the other TPs within the visibly contaminated area.

At TP-13, a dark layer of charred wood debris was observed from 1.0 to 1.4 ft bgs. The screening sample taking directly from this debris layer had a PID reading of 0.1 ppm. For comparison, a screening sample collected directly from the tar layer at TP-14 had a PID reading of 62.5 ppm.

3.3 Analytical Soil Sampling

Fifteen primary and one duplicate analytical soil samples were collected from the shallow TPs. The analytical program varied slightly by location and sample depth:

- All samples were submitted for analysis of DRO and RRO (Method AK 102/103).
- Three samples and one duplicate were collected from the visibly contaminated layer at TP-01, TP-02, and TP-03. At TP-03 the primary and duplicate samples collected from the tar layer were also submitted for BTEX (Method 8021B), PAHs (Method 8270D SIM), RCRA metals (Method SW6020A), and PCBs (Method SW8082A).

- Four samples were collected from one foot below the visibly contaminated layer to aid in vertical delineation at TP-01, TP-02, and TP-03. As discussed in Section 3.2, one of these samples (TP-02) was also submitted for BTEX, PAHs, RCRA metals, and PCBs.
- Eight samples were collected from the TPs in which no visibly contaminated layer was identified.
- Four primary and one duplicate analytical samples were collected from the soil borings and analyzed for DRO and RRO based on the rationale described in Section 2.3.

DRO and RRO results for the soil samples are presented in Table 3. BTEX and PAH results for the soil samples are presented in Table 4. PCBs and RCRA metals results are presented in Table 5. Figure 2 illustrates the DRO and RRO results. Figure 3 illustrates the BTEX, PAH, and RCRA metals results.

3.3.1 DRO and RRO Results

TABLE 3: SOIL ANALYTICAL RESULTS - DRO/RRO

Location	Depth (ft bgs)	Sample ID	Date	Duplicate	Tar Observed	DRO (mg/kg)	RRO (mg/kg)
Shallow Test Pits							
TP-01	1.0 - 1.3	16-TAL-TP-01-1.0-1.3	8/23/2016		X	**99,500**	**83,100**
	2.4 - 2.5	16-TAL-TP-01-2.4-2.5	8/23/2016			12.2 U	11.1 J
	2.5 - 2.6	16-TAL-TP-01-2.5-2.6	8/23/2016			12.4 U	14.3 J
TP-02	1.1 - 1.3	16-TAL-TP-02-1.1-1.3	8/23/2016		X	**35,700**	**45,200**
	2.2 - 2.5	16-TAL-TP-02-2.2-2.5	8/23/2016			189	324
TP-03	1.5 - 1.8	16-TAL-TP-03-1.5-1.8	8/23/2016		X	**66,900**	**67,400**
		16-TAL-TP-20-1.5-1.8	8/23/2016	X	X	**71,000**	**70,700**
	2.8 - 3.0	16-TAL-TP-03-2.8-3.0	8/23/2016			11.8 U	16.8 J
TP-04	1.0 - 1.2	16-TAL-TP-04-1.0-1.2	8/23/2016			11.3 U	20.2 J
TP-05	1.0 - 1.2	16-TAL-TP-05-1.0-1.2	8/23/2016			10.3 J	48.3
TP-06	1.3 - 1.5	16-TAL-TP-06-1.3-1.5	8/23/2016			8.82 J	44.2
TP-07	1.4 - 1.5	16-TAL-TP-07-1.4-1.5	8/23/2016			52.5	333
TP-08	1.2 - 1.3	16-TAL-TP-08-1.2-1.3	8/23/2016			**4,210**	**18,000**
TP-09	2.1 - 2.3	16-TAL-TP-09-2.1-2.3	8/23/2016			112	721
TP-10	1.0 - 1.2	16-TAL-TP-10-1.0-1.2	8/23/2016			67.0	399
TP-11	1.5 - 1.7	16-TAL-TP-11-1.5-1.7	8/23/2016			24.9 J	150
Deep Soil Borings							
SB-01	18.3 - 18.7	16-TAL-SB-01-18.3-18.7	8/24/2016			7.63 J	19.6 J
SB-02	19.0 - 19.6	16-TAL-SB-02-19.0-19.6	8/24/2016			7.87 J	20.0 J
SB-03	1.6 - 1.8	16-TAL-SB-03-1.6-1.8	8/24/2016		X	**12,400**	**31,400**
	5.5 - 6.0	16-TAL-SB-03-5.5-6.0	8/24/2016			8.25 J	27.5
	5.5 - 6.0	16-TAL-SB-20-5.5-6.0	8/24/2016	X		11.9 U	21.1 J
ADEC Cleanup Levels[1]						***250***	***10,000***

Results above ADEC cleanup values are underlined & bolded.

(1) Most conservative values from 18 AAC 75.345, Tables B1 and B2

ADEC = Alaska Department of Environmental Conservation
DRO = diesel range organics RRO = residual range organics
U = The analyte was not detected; value shown is the limit of detection
J = result qualified as estimated because it is less than the limit of quantification
mg/kg = milligrams per kilogram
ft bgs = feet below ground surface

Sample locations TP-01, TP-02, TP-03, and SB-03 were within the visibly contaminated area (Figure 2). Samples collected directly from the contaminated tar layer had DRO concentrations ranging from 12,400 mg/kg to 99,500 mg/kg. Concentrations of RRO ranged from 31,400 mg/kg to 70,700 mg/kg. At SB-03 a primary and duplicate sample were collected from 5.5 to 6.0 ft bgs to confirm vertical delineation within the visibly contaminated area. The DRO and RRO results at SB-03 were below 1/10th of the SCL or were not detected.

At one location beyond the visibly contaminated area, TP-08, concentrations of DRO and RRO exceeded SCLs with 4,210 mg/kg and 18,000 mg/kg, respectively. There were no obvious signs of contamination observed at this location either visually or through field screening with the PID.

DRO and RRO concentrations in soil samples collected from the groundwater smear zone, at depths ranging from 18.3 to 19.6 ft bgs and presumably downgradient from the contamination, were below 1/10th of the SCLs.

3.3.2 BTEX and PAH Results

BTEX and PAH were analyzed in samples from the visibly contaminated layer at TP-03 and from one foot below the visibly contaminated layer at TP-02. Results are presented below in Table 4.

Benzene, ethylbenzene, and toluene were not detected in either location. Concentrations of o-xylene were detected at less than 1/10th the SCL.

Five PAH analytes (1-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and naphthalene) were detected above their respective SCLs at TP-03. Dibenzo(a,h)anthracene was not detected, but the dibenzo(a,h)anthracene limit of detection (LOD) exceeded the SCL. At TP-02, no PAHs were detected above 1/10th of the SCLs.

TABLE 4: SOIL ANALYTICAL RESULTS - BTEX AND PAH

			Sample ID	16-TAL-TP-02-2.2-2.5	16-TAL-TP-03-1.5-1.8	16-TAL-TP-20-1.5-1.8
			Location	TP-02	TP-03	TP-03
			Depth (ft bgs)	2.2 - 2.5	1.5 - 1.8	1.5 - 1.8
			Tar Observed		**X**	**X**
			Date	8/23/2016	8/23/2016	8/23/2016
			Duplicate			**X**
Analyte	Method	Units	Cleanup Level[1]			
BTEX						
Benzene	8021B	µg/kg	22	10.9 U	9.15 U	9.80 U
Ethylbenzene		µg/kg	130	21.9 U	18.3 U	19.6 U
Toluene		µg/kg	6,700	21.9 U	18.3 U	19.6 U
o-Xylene		µg/kg	1,500	17.5 J	110	142
m- & p-Xylene		µg/kg	1,500	43.8 U	36.5 U	39.1 U
Total Xylenes		µg/kg	1,500	17.5 J	110	142
Polycyclic Aromatic Hydrocarbons						
1-Methylnaphthalene	8270D SIM	µg/kg	410	3.06 U	**13,800**	**17,900**
2-Methylnaphthalene		µg/kg	1,300	2.02 J	1,215 U	1,225 U
Acenaphthene		µg/kg	37,000	3.06 U	33,400	**37,400**
Acenaphthylene		µg/kg	18,000	3.37 J	1,215 U	1,225 U
Anthracene		µg/kg	390,000	3.06 U	11,600	14,200
Benzo(a)anthracene		µg/kg	280	7.13	**7,660**	**8,250**
Benzo[a]pyrene		µg/kg	200	14.3	**4,200**	**4,130**
Benzo[b]fluoranthene		µg/kg	2,000	12.8	**3,250**	**2,990**
Benzo[g,h,i]perylene		µg/kg	2,300,000	6.97	1,660 J	1,500 J
Benzo[k]fluoranthene		µg/kg	20,000	3.28 J	2,620	1,225 U
Chrysene		µg/kg	82,000	7.75	19,600	20,000
Dibenzo[a,h]anthracene		µg/kg	200	2.13 J	1,215 U	1,225 U
Fluoranthene		µg/kg	590,000	6.68	1,215 U	5,950
Fluorene		µg/kg	36,000	3.06 U	21,800	25,600
Indeno[1,2,3-c,d]pyrene		µg/kg	2,000	4.55 J	1,215 U	1,225 U
Naphthalene		µg/kg	38	3.06 U	**2,300 J**	1,225 U
Phenanthrene		µg/kg	39,000	3.06 U	33,700	34,200
Pyrene		µg/kg	87,000	23.5	30,100	31,100

Results above ADEC cleanup values are underlined & bolded.
(1) Most conservative values from 18 AAC 75.345, Tables B1 and B2
*Sample results with limits of detection greater than the cleanup value are shaded gray.
ft bgs = feet below ground surface
µg/kg = micrograms per kilogram
U = The analyte was not detected; value shown is the limit of detection
J = result qualified as estimated because it is less than the limit of quantification

3.3.3 RCRA Metals and PCB Results

RCRA metals and PCBs were analyzed in samples collected from the visibly contaminated layer at TP-03 and from one foot below the visibly contaminated layer at TP-02. Results are presented in Table 5, below.

Arsenic (As) was detected at concentrations exceeding the SCLs in the samples collected at both locations. PCBs were not detected in any samples. However, due to interference, LODs were elevated above SCLs for total PCBs in the sample and duplicate from the visibly contaminated layer.

TABLE 5: SOIL ANALYTICAL RESULTS - RCRA METALS AND PCBS

			Sample ID	16-TAL-TP-02-2.2-2.5	16-TAL-TP-03-1.5-1.8	16-TAL-TP-20-1.5-1.8
			Location	TP-02	TP-03	TP-03
			Depth (ft bgs)	2.2 - 2.5	1.5 - 1.8	1.5 - 1.8
			Tar Observed		**X**	**X**
			Date	8/23/2016	8/23/2016	8/23/2016
			Duplicate			**X**
Analyte	Method	Units	Cleanup Level[1]			
RCRA Metals						
Arsenic	SW6020A	mg/kg	0.20	**10.1**	**5.02**	**4.67**
Barium		mg/kg	2,100	453	185	191
Cadmium		mg/kg	9.1	0.343	0.213	0.175 J
Chromium		mg/kg	100,000[2]	31.8	23.3	23.2
Lead		mg/kg	400	9.45	8.51	8.20
Mercury		mg/kg	0.36	0.0637	0.0316 J	0.0294 J
Selenium		mg/kg	6.9	0.595 J	0.387 J	0.393 J
Silver		mg/kg	11	0.0929 J	0.102 U	0.104 U
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	SW8082A	µg/kg		30.4 U	121 U	122 U
Aroclor-1221		µg/kg		122 U	482 U	486 U
Aroclor-1232		µg/kg		30.4 U	121 U	122 U
Aroclor-1242		µg/kg		30.4 U	121 U	122 U
Aroclor-1248		µg/kg		30.4 U	121 U	122 U
Aroclor-1254		µg/kg		30.4 U	121 U	122 U
Aroclor-1260		µg/kg		30.4 U	121 U	122 U
Total PCBs		µg/kg	1,000	304 U	**1,210 U**	**1,220 U**

Results above ADEC cleanup values are underlined & bolded.
(1) Most conservative values from 18 AAC 75.345, Tables B1 and B2
(2) In absence of speciation data, cleanup level for chromium (III) is referenced
ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
RCRA = Resource Conservation and Recovery Act
µg/kg = micrograms per kilogram
U = The analyte was not detected; value shown is the limit of detection
J = result qualified as estimated because it is less than the limit of quantification

3.4 Analytical Groundwater Sampling

Groundwater samples were collected from temporary well points at locations TWP-01, TWP-02, and TWP-03 (Figures 2 and 3). TWP-03 was located within the source area on Lot 7, Block 11. TWP-01 and TWP-02 were located south of First Avenue. Groundwater samples were analyzed for DRO, RRO, BTEX, and PAHs. Results are presented in the appended Table 6.

No exceedances of ADEC GWCLs were observed in the groundwater samples. All analytes were reported as non-detects with one exception: DRO was detected in the duplicate sample collected at TWP-02 at an estimated concentration of 0.190 milligrams per liter (below the limit of quantitation).

3.5 Piping Investigation

The visibly contaminated area was scanned with a magnetometer which resulted in positive signals at random locations throughout the grid, but no linear signals were observed (Appendix A). Segments of 2-in diameter metal piping were observed scattered throughout the lot, with some segments partially buried. A broken segment of the 2-in diameter metal piping was encountered at TP-01 at 0.5 ft bgs during the excavation.

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4.0 QUALITY ASSURANCE REVIEW

ADS conducted a data quality assessment (DQA) for the one sample delivery group (SDG) generated during this project, 1168490. The DQA, including a summary of qualified data and ADEC data review checklist, is included in Appendix D along with the analytical laboratory report. The following paragraph briefly summarizes the key findings of the DQA.

In general, sensitivity, precision, accuracy, representativeness, comparability, and completeness were acceptable for the purposes of this project. Several analytes had LODs that exceeded soil cleanup levels. However, samples with elevated LODs contained other analytes well above soil cleanup levels, so overall data usability was not affected. Five sample results were qualified due to blank contamination. Affected results were below the limit of quantification and well below relevant cleanup levels in each case. All project sample results were considered usable (no data were rejected), and a completeness score of 100% was calculated for this project.

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5.0 CONCLUSIONS

5.1 Fuel Impacts

Consistent with the 2015 PACP report, apparent Bunker C fuel oil contamination was observed in the southern portion of the property boundary in a distinct 2 to 6 in thick layer at approximately 0.5 to 1.5 ft bgs. Analytical soil sampling within the visibly contaminated area identified concentrations of DRO, RRO, and six PAH analytes above ADEC SCLs. The estimated lateral boundary of Bunker C contamination is illustrated in Figures 2 and 3 in an approximately 5,500 square (sq) ft area. Volume estimates for the removal of Bunker C contaminated material is estimated at 600 bank cubic yards (cy) of soil, assuming the uppermost 3 ft bgs are removed.

Contamination at the site is not limited to the area defined by the visibly contaminated tar layer. At location TP-08 no obvious signs of contamination were observed. However, analytical results for DRO (4,210 mg/kg) and RRO (18,000 mg/kg) concentrations exceeded SCLs. S&W also reported exceedances of DRO and benzene from soil samples in this area that did not have directly observable contamination. PID field screening results were not elevated during either sampling event. An estimated lateral boundary of DRO/RRO contamination is illustrated on Figures 2 and 3. This area of contamination likely comes from a different source as the physical and chemical characteristics (visual evidence, odor, PID readings, and DRO/RRO chromatograms) are not the same as for the Bunker C contamination. According to the laboratory, the hydrocarbon signature observed in the DRO/RRO chromatogram for sample 16-TAL-TP-08-1.2-1.3 was consistent with a lube oil, not a fuel. This DRO/RRO contaminated area is estimated to be approximately 300 sq ft. Removal of the DRO/RRO contaminated soil would require an additional 20 bank cy of soil, if the upper most 2 feet of soil are excavated, although vertical delineation of this area has not been accomplished.

On the southern half of Lot 7, Block 11, significant sheen was observed on the ground surface following rains during the field event. As noted in the PACP, many community members have observed a similar sheen on the ground surface in the spring time during break-up season.

Analytical results show no evidence of vertical migration of COPCs in the soil. Bunker C contamination appears to be confined to the upper 2 ft bgs. Results from samples collected from the TWPs indicate no impacts to groundwater from historical releases of Bunker C contamination.

The northwest and northeast corners of the visibly contaminated tar layer were delineated by S&W (Figures 2 and 3). This report confirms the lateral extent of the tar layer as well as the additional COPCs to the east and west. However, the extent to which the visibly contaminated tar layer extends beneath First Avenue remains unknown; Ahtna was unable to refine the southern extent due to the presence of underground utilities (phone, water, and sewer). Additionally, uncertainty exist in regards to the northwest corner of the property boundary where DRO and RRO exceeded SCLs, but no visibly contaminated soil was observed.

5.2 PCBs and RCRA Metals

PCBs were not detected in the soil samples collected from the visibly contaminated tar layer or from the location near First Avenue; therefore, PCBs should not be considered a COPC at the site.

Of the RCRA metals, As was detected at concentrations exceeding ADEC SCLs. Arsenic concentrations ranged from 4.67 gm/kg to 10.1 mg/kg. Research indicates As, among other elements, occurs naturally in the state of Alaska at concentrations greater than the respective ADEC Method Two SCLs (ADEC, 2009; Gough et al., 1988). A U.S. Geological Survey study identified mean Alaska background concentrations for As in Alaska soil as 9.6 mg/kg. Data from five stream or pond sediment samples collected within a 9-mile radius of Tanana resulted in mean localized background concentrations for As of 9.2 mg/kg (National Geochemical Survey Data, 2016). These studies, along with the analytical data presented in this report, suggest that the site contains naturally occurring As concentrations above the ADEC Method Two SCLs.

5.3 Piping Investigation

Results of the piping investigation suggest there is no intact fuel distribution piping remaining on the site. Within Lot 7, no linear signals were detected. Piping on the south side of First Avenue appears to end approximately 10 ft from the road. The fuel pump remains near the site, located approximately 20 ft south of First Avenue (Figure 2). Residents reported that during installation of the sewer line which runs the centerline of the road (see sketch in field book, Appendix A), a 2-in diameter metal pipe containing diesel was encountered that crossed the road, toward the pump location. According to residents, an unknown amount of diesel was released during removal of the pipe. The soil was reportedly excavated, transported to the landfill, and buried.

5.4 Conceptual Site Model

The CSM was revised based on the analytical sampling results presented in this report. The ADEC CSM Graphic and Scoping Forms are included in Appendix E.

Impacted media includes surface soil, air, and biota. Groundwater has possible minimal impact from contamination with a DRO concentration nearly 1/10th of the GWCL. The vertical extent of Bunker C contamination does not extend below 2 ft bgs. Vertical extent of the DRO/RRO contamination in the vicinity of TP-08 remains unknown. Potential receptors at the site remain the same as identified in the 2015 PACP and include site visitors, trespassers, recreational users, and utility or construction workers. Potential future receptors include farmers.

Soil exposure pathways include incidental soil ingestion and dermal absorption of surface soils. Groundwater exposure pathways are considered potentially complete based on a DRO detection (0.190 mg/L) at more than $1/10^{th}$ the GWCL. Surface water on the property consist of puddles during breakup and after rainfall that are impacted by runoff and erosion, thus dermal absorption is considered a complete pathway.

The exposure pathways via outdoor and indoor air remain complete. Potential exposure via indoor air at the Tanana Community Hall is unlikely due to a skirted crawlspace beneath the structure. However, additional data is required, thus the pathway is considered potentially complete.

The biota pathway is currently considered incomplete, but the potential for a community garden would complete this pathway.

6.0 RECOMMENDATIONS

Ahtna recommends proceeding with site cleanup based on the findings of this report and the 2015 *Tanana Community Hall Lot PACP* (S&W, 2015). Horizontal and vertical delineation of the Bunker C soil contamination is considered complete, with the exception of the southern extent beneath First Avenue. Sample results confirmed vertical migration of contaminants is limited, and contamination is confined to a thin, near-surface layer. Likewise, groundwater has possible minimal impact from contamination with DRO concentrations nearly 1/10th the GWCL.

While the Bunker C contamination has been adequately delineated, sample results from TP-08 and S&W's Test Pit 2 suggest another source of localized soil contamination from a residual-range petroleum hydrocarbon (Figures 2 and 3). During both sampling events, field observations and PID readings provided no indication of soil contamination, and the tar layer of Bunker C observed elsewhere on site was absent. Reviewing the DRO/RRO chromatogram for sample 16-TAL-TP-08-1.2-1.3, it appears the hydrocarbon signature is consistent with a non-volatile lube oil. However the origin of this localized contamination is unknown. Contamination in the vicinity of these two test pits could be further delineated at the time of excavation using a PetroFlag field screening kit or equivalent.

6.1.1 Remedial Alternatives

Contaminated soil from both locations, given its hydrophobic, recalcitrant nature, will likely be difficult to treat through landfarming or other forms of bioremediation. The constituents in Bunker C have extremely limited bioavailability, limiting the potential effectiveness of landfarming. Also, the presence of large timbers and charred wood debris contaminated with Bunker C further limits soil treatment options.

Approximately 5 cubic yards of Bunker C contaminated soil and wood debris removed during the 2014 ditch excavation is currently stored on a liner at the Landfill. This material should be included in the selected remedial action.

The following remedial alternatives could be employed to address contaminated surface soil, taking into account the nature of soil contamination at the site.

6.1.1.1 Landfill Disposal

Landfill disposal may be the most cost-effective and practicable option for soil and timbers contaminated with Bunker C. Under ADEC's solid waste management regulations, 18 AAC 60.025 allows for disposal of contaminated soil in a Class III municipal solid waste landfill if certain conditions are met, including a maximum volume of 500 cy and maximum allowable concentrations of petroleum hydrocarbons. DRO and RRO results exceed the maximum allowable concentrations from 18 AAC 60.025(b)(4) and the total volume will likely exceed 500 cy. However, disposal may still be allowed in accordance with 18 AAC 60.025(c),(d), and (e), as follows:

(c) The department will approve the beneficial use within a Class III Municipal Solid Waste Landfill (MSWLF) of polluted soil that does not meet one or more of the criteria in (b) of this section, if the proposed use of the soil

(1) has a direct benefit to the community; a direct benefit to the community does not include providing compensation for the disposal of the polluted soil;

(2) can be accommodated within the established operational practices at the landfill or within the existing maintenance, closure, or expansion plans for the landfill; and

(3) will comply with the conditions and requirements in (d) and (e) of this section.

(d) The disposal of polluted soil at a landfill other than a Class I MSWLF, an industrial solid waste landfill, a drilling waste landfill, or a Class III MSWLF, or the beneficial use of polluted soil under (c) of this section, will be approved on a case-by-case basis only if the owner of the polluted soil and the owner or operator of the landfill demonstrate, to the satisfaction of the department, that

(1) the waste in the landfill cannot be washed into nearby surface water, and leachate from the landfill cannot reach nearby surface water;

(2) the polluted soil, if it is disposed in the landfill, will not cause a threat to the public health, safety, or welfare, or to the environment;

(3) a practical potential does not exist for migration of a hazardous constituent from the landfill to an aquifer during the active life and post-closure care of the landfill; and

(4) the owner of the landfill agrees to implement institutional controls that the department determines are necessary for long-term protection of the public health, safety, and welfare and the environment.

(e) The demonstration required under (d) of this section must be certified by a qualified groundwater scientist and based upon site-specific

(1) field-collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting fate and transport of hazardous constituents; and

(2) hazardous constituent fate and transport predictions that anticipate maximum, likely migration and consider effects on public health, safety, and welfare and the environment.

6.1.1.2 Off-Site Transportation and Thermal Remediation

Given that the contamination is present in a thin layer and total soil volume is not excessive, off-site transportation (by barge) and thermal remediation may be an option for Bunker C contaminated soil. However, this alternative does not address the buried timbers contaminated by a layer of Bunker C. These would likely need to be disposed at the Tanana Landfill. The cost of this alternative is high, due to the costs of transportation and disposal.

6.1.1.3 Landfarming Following a Treatability Study

Landfarming of Bunker C contaminated soil should not be entirely ruled out. Bioavailability concerns could potentially be addressed by dilution and application of surfactants and/or oleophilic

fertilizer. However, in order to increase the likelihood of bioremediation effectiveness, a bench-scale treatability study using site-specific conditions and soil is recommended. ADEC could partner with the University of Alaska Fairbanks or other research institute to conduct such a study. However, the scale of contamination at the site is not likely to warrant the costs of such a study. As with off-site transportation and thermal remediation alternative, the contaminated timbers would need to be addressed separately.

6.1.2 Preferred Remedial Alternative

We recommend the ADEC pursue disposal of the contaminated soil and timbers from the site in the Tanana Landfill. This could be executed in conjunction with closure of a diesel-contaminated landfarm from the Tanana Power Company site. Soil from the Community Hall site should be disposed in a dedicated cell, for which landfarmed soils from the Tanana Power Company site could be used as cover. Given an adequate analysis of the leachability potential of the Bunker C and lube-oil contaminated soils, landfill disposal is the most cost-effective and practicable remedial alternative that is likely to provide long-term protection of public health, safety, welfare, and the environment.

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7.0 REFERENCES

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TABLE 6

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Table 6: Groundwater Analytical Results
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			Sample ID	16-TAL-WP-01-21.5-25.0	16-TAL-WP-02-21.5-25.0	16-TAL-WP-20-21.5-25.0	16-TAL-WP-03-21.5-25.0
			Location	SB-01 / TWP-01	SB-02 / TWP-02		SB-03 / TWP-03
			Date	8/25/2016	8/25/2016	8/25/2016	8/25/2016
			Duplicate			X	
Analyte	Method	Units	Cleanup Level[1]				
GRO	AK101	mg/L	2.2	0.100 UB	0.0500 U	0.0500 U	0.0500 U
DRO	AK102	mg/L	1.5	0.600 UB	0.588 UB	0.190 J	0.294 U
RRO	AK103	mg/L	1.1	0.250 U	0.245 U	0.245 U	0.245 U
BTEX							
Benzene	8021B	µg/L	4.6	0.250 U	0.250 U	0.250 U	0.250 U
Ethylbenzene		µg/L	15	0.500 U	0.500 U	0.500 U	0.500 U
Toluene		µg/L	1,100	0.500 U	0.500 U	0.500 U	0.500 U
o-Xylene		µg/L	190	0.500 U	0.500 U	0.500 U	0.500 U
m- & p-Xylene		µg/L	190	1.00 U	1.00 U	1.00 U	1.00 U
Total Xylenes		µg/L	190	-	-	-	-
Polycyclic Aromatic Hydrocarbons							
1-Methylnaphthalene	8270D SIM LV	µg/L	11	0.0254 U	0.0154 J	0.0240 U	0.0245 U
2-Methylnaphthalene		µg/L	36	0.0508 UB	0.0256 U	0.0240 U	0.0490 UB
Acenaphthene		µg/L	530	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Acenaphthylene		µg/L	260	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Anthracene		µg/L	43	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Benzo(a)anthracene		µg/L	0.12	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Benzo[a]pyrene		µg/L	0.034	0.0101 U	0.0103 U	0.00960 U	0.00980 U
Benzo[b]fluoranthene		µg/L	0.34	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Benzo[g,h,i]perylene		µg/L	0.26	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Benzo[k]fluoranthene		µg/L	0.80	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Chrysene		µg/L	2.0	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Dibenzo[a,h]anthracene		µg/L	0.034	0.0101 U	0.0103 U	0.00960 U	0.00980 U
Fluoranthene		µg/L	260	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Fluorene		µg/L	290	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Indeno[1,2,3-c,d]pyrene		µg/L	0.19	0.0254 U	0.0256 U	0.0240 U	0.0245 U
Naphthalene		µg/L	1.7	0.0510 U	0.0510 U	0.0481 U	0.0490 U
Phenanthrene		µg/L	170	0.0177 J	0.0180 J	0.0240 U	0.0245 U
Pyrene		µg/L	120	0.0254 U	0.0256 U	0.0240 U	0.0245 U

Results above ADEC cleanup values are underlined & bolded.
(1) Table C of 18 AAC 75.345
mg/L = milligrams per liter
µg/L = micrograms per liter
J = result qualified as estimated because it is less than the limit of quantification
U = The analyte was not detected; value shown is the limit of detection
UB = Result considered not detected at the limit of quantitation, due to a similar detection in a corresponding method blank

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FIGURES

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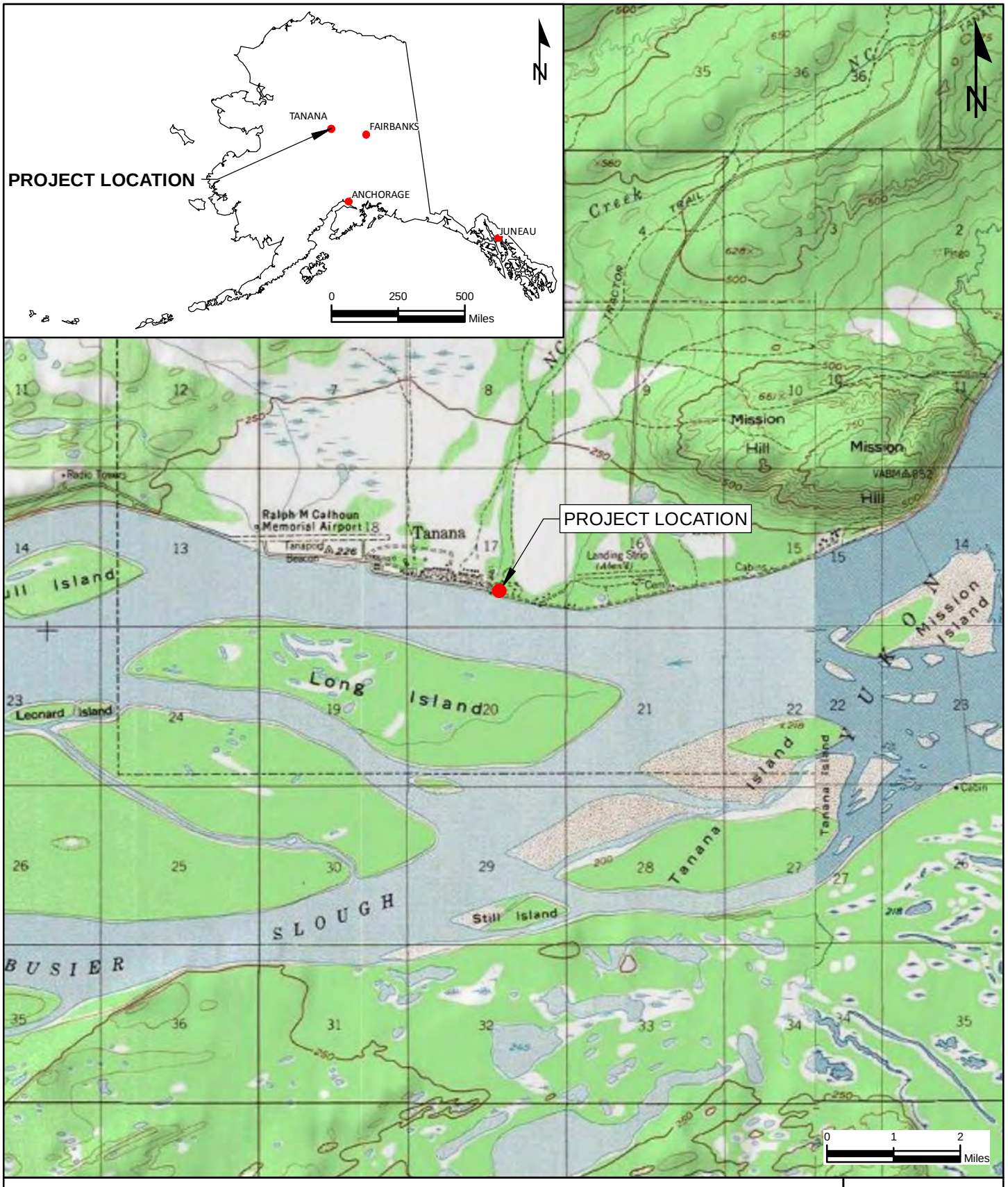

Tanana Community Hall Brownfield Assessment Report
Tanana, Alaska

Ahtna Engineering Services, LLC

State and Site Vicinity Maps

Project Number: 20266.019	Figure Number: 1
Date: 11/18/2016	
Drafted By: R.F.	

Prepared by rfrye, 11/18/2016; L:\Tanana\20266.019\GIS\MXD\Report\Final\F1 State Site Vicinity.mxd

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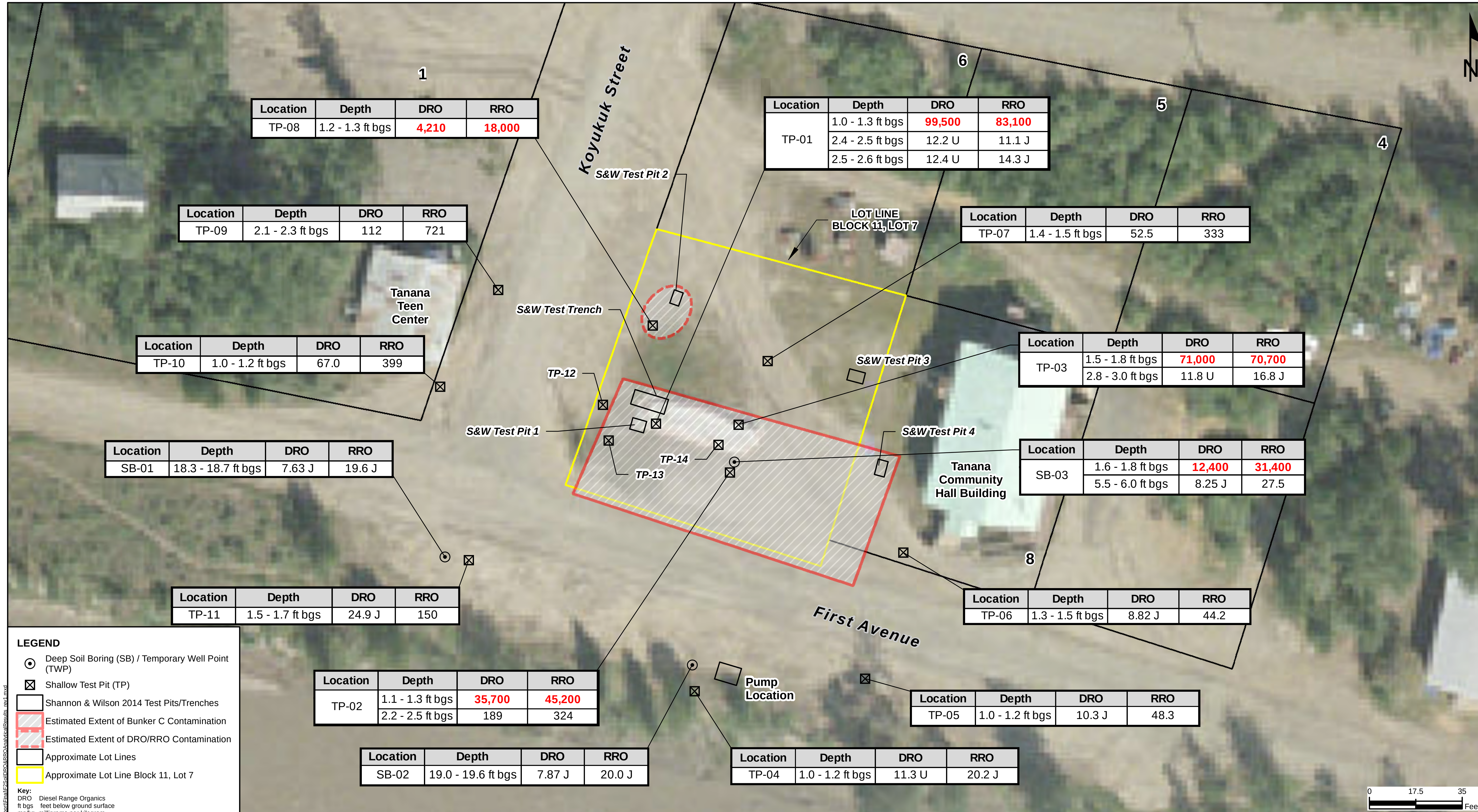

Location	Depth	DRO	RRO
TP-08	1.2 - 1.3 ft bgs	**4,210**	**18,000**

Location	Depth	DRO	RRO
TP-01	1.0 - 1.3 ft bgs	**99,500**	**83,100**
	2.4 - 2.5 ft bgs	12.2 U	11.1 J
	2.5 - 2.6 ft bgs	12.4 U	14.3 J

Location	Depth	DRO	RRO
TP-09	2.1 - 2.3 ft bgs	112	721

Location	Depth	DRO	RRO
TP-07	1.4 - 1.5 ft bgs	52.5	333

Location	Depth	DRO	RRO
TP-10	1.0 - 1.2 ft bgs	67.0	399

Location	Depth	DRO	RRO
TP-03	1.5 - 1.8 ft bgs	**71,000**	**70,700**
	2.8 - 3.0 ft bgs	11.8 U	16.8 J

Location	Depth	DRO	RRO
SB-01	18.3 - 18.7 ft bgs	7.63 J	19.6 J

Location	Depth	DRO	RRO
SB-03	1.6 - 1.8 ft bgs	**12,400**	**31,400**
	5.5 - 6.0 ft bgs	8.25 J	27.5

Location	Depth	DRO	RRO
TP-11	1.5 - 1.7 ft bgs	24.9 J	150

Location	Depth	DRO	RRO
TP-06	1.3 - 1.5 ft bgs	8.82 J	44.2

Location	Depth	DRO	RRO
TP-02	1.1 - 1.3 ft bgs	**35,700**	**45,200**
	2.2 - 2.5 ft bgs	189	324

Location	Depth	DRO	RRO
TP-05	1.0 - 1.2 ft bgs	10.3 J	48.3

Location	Depth	DRO	RRO
SB-02	19.0 - 19.6 ft bgs	7.87 J	20.0 J

Location	Depth	DRO	RRO
TP-04	1.0 - 1.2 ft bgs	11.3 U	20.2 J

LEGEND

- Deep Soil Boring (SB) / Temporary Well Point (TWP)
- Shallow Test Pit (TP)
- Shannon & Wilson 2014 Test Pits/Trenches
- Estimated Extent of Bunker C Contamination
- Estimated Extent of DRO/RRO Contamination
- Approximate Lot Lines
- Approximate Lot Line Block 11, Lot 7

Key:
DRO Diesel Range Organics
ft bgs feet below ground surface
mg/kg milligrams per kilogram
RRO Residual Range Organics

U: The analyte was not detected; value shown is the limit of detection
J: Result qualified as estimated because it is less than the limit of quantification

Notes:
1. Image provided by Alaska Department of Commerce, Community, and Economic Development.
2. TP-12, TP-13, and TP-14 not sampled.
3. DRO and RRO concentrations are in mg/kg.
4. Red & **Bold** Text = value exceeds ADEC Table B2 Cleanup Level:
DRO = 250 mg/kg
RRO = 10,000 mg/kg

Document Path: L:\Tanana\20266.019\GIS\MXD\Report\Final\F2SoilDRO&RROAnalyticalResults_rev1.mxd

Tanana Community Hall Brownfield Assessment Report
Tanana, Alaska

Soil DRO and RRO Analytical Results

Ahtna Engineering Services, LLC

Project Number: 20266.019
Date: 1/10/2017
Drafted By: R.F.

Figure Number: **2**

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Location	TP-02
Depth (ft bgs)	2.2 - 2.5
BTEX µg/kg	
Benzene	10.9 U
Ethylbenzene	21.9 U
Toluene	21.9 U
o-Xylene	17.5 J
m & p -Xylene	43.8 U
Total Xylenes	17.5 J
PAH µg/kg	
1-Methylnaphthalene	3.06 U
2-Methylnaphthalene	2.02 J
Acenaphthene	3.06 U
Acenaphthylene	3.37 J
Anthracene	3.06 U
Benzo(a)anthracene	7.13
Benzo[a]pyrene	14.3
Benzo[b]fluoranthene	12.8
Benzo[g,h,i]perylene	6.97
Benzo[k]fluoranthene	3.28 J
Chrysene	7.75
Dibenzo[a,h]anthracene	2.13 J
Fluoranthene	6.68
Fluorene	3.06 U
Indeno[1,2,3-c,d]pyrene	4.55 J
Naphthalene	3.06 U
Phenanthrene	3.06 U
Pyrene	23.5
RCRA Metals mg/kg	
Arsenic	**10.1**
Barium	453
Cadmium	0.343
Chromium	31.8
Lead	9.45
Mercury	0.0637
Selenium	0.595 J
Silver	0.0929 J

Location	TP-03
Depth (ft bgs)	1.5 - 1.8
BTEX µg/kg	
Benzene	9.15 U
Ethylbenzene	18.3 U
Toluene	18.3 U
o-Xylene	142
m & p -Xylene	36.5 U
Total Xylenes	142
PAH µg/kg	
1-Methylnaphthalene	**17,900**
2-Methylnaphthalene	1,215 U
Acenaphthene	**37,400**
Acenaphthylene	1,215 U
Anthracene	14,200
Benzo(a)anthracene	**8,250**
Benzo[a]pyrene	**4,200**
Benzo[b]fluoranthene	**3,250**
Benzo[g,h,i]perylene	1,660 J
Benzo[k]fluoranthene	2,620
Chrysene	20,000
Dibenzo[a,h]anthracene	1,215 U
Fluoranthene	5,950
Fluorene	25,600
Indeno[1,2,3-c,d]pyrene	1,215 U
Naphthalene	**2,300 J**
Phenanthrene	34,200
Pyrene	31,100
RCRA Metals mg/kg	
Arsenic	**5.02**
Barium	191
Cadmium	0.213
Chromium	23.3
Lead	8.51
Mercury	0.0316 J
Selenium	0.393 J
Silver	0.102 U

ADEC Method Two Cleanup Levels	
BTEX (µg/kg)	
Benzene	22
Ethylbenzene	130
Toluene	6,700
o-Xylene	1,500
m & p -Xylene	1,500
Total Xylenes	1,500
Polycyclic Aromatic Hydrocarbons (µg/kg)	
1-Methylnaphthalene	410
2-Methylnaphthalene	1,300
Acenaphthene	37,000
Acenaphthylene	18,000
Anthracene	390,000
Benzo(a)anthracene	280
Benzo[a]pyrene	200
Benzo[b]fluoranthene	2,000
Benzo[g,h,i]perylene	2,300,000
Benzo[k]fluoranthene	20,000
Chrysene	82,000
Dibenzo[a,h]anthracene	200
Fluoranthene	590,000
Fluorene	36,000
Indeno[1,2,3-c,d]pyrene	2,000
Naphthalene	38
Phenanthrene	39,000
Pyrene	87,000
RCRA Metals (mg/kg)	
Arsenic	0.20
Barium	2,100
Cadmium	9.1
Chromium	0.089
Lead	400
Mercury	0.36
Selenium	6.9
Silver	11

Koyukuk Street

First Avenue

Tanana Teen Center

Tanana Community Hall Building

Pump Location

S&W Test Pit 2

S&W Test Trench

S&W Test Pit 1

S&W Test Pit 3

S&W Test Pit 4

LOT LINE BLOCK 11, LOT 7

TP-01 TP-04 TP-05 TP-06 TP-07 TP-08 TP-09 TP-10 TP-11 TP-12 TP-13 TP-14

SB-01/TWP-01 SB-02/TWP-02 SB-03/TWP-03

1 4 5 6 8 9

N

0 17.5 35 Feet

LEGEND

- Deep Soil Boring (SB) / Temporary Well Point (TWP)
- Shallow Test Pit (TP)
- Shannon & Wilson 2014 Test Pits/Trenches
- Estimated Extent of Bunker C Contamination
- Estimated extent of DRO/RRO Contamination
- Approximate Lot Lines
- Approximate Lot Line Block 11, Lot 7

Key:
ft bgs feet below ground surface
mg/kg milligrams per kilogram
RCRA Resource Conservation and Recovery Act
µg/kg micrograms per kilogram

U: The analyte was not detected; value shown is the limit of detection
J: Result qualified as estimated because it is less than the limit of quantification

Notes:
1. Image provided by Alaska Department of Commerce, Community, and Economic Development.
2. Red & **Bold** Text = value exceeds ADEC Cleanup Levels
3. Sample results with limits of detection greater than the cleanup value are shaded gray.

Document Path: L:\Tanana\20266.019\GIS\MXD\Report Final\F3MobileAnalyte Results.mxd

Tanana Community Hall Brownfield Assessment Report
Tanana, Alaska

Ahtna Engineering Services, LLC

Soil BTEX, PAH, and RCRA Metals Analytical Results

Project Number: 20266.019
Date: 1/10/2017
Drafted By: R.F.

Figure Number: 3

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APPENDIX A

LOGBOOK AND FIELD DATA SHEETS

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COMMUNITY HALL

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PROJECT NO. 20266.019

BOOK 1

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Projects

Tanana Community Hall Site Contact Info

Name	Org	Phone
Kathleen Peters-Furay	Tribe	366-7166
Shannon Eckart	Tribe	366-7160
Charlie Wright	Toʼsahaa	366-7177
Jeff Weltzin	City	~~XX-1054~~ 596-1364
Pat Moore	City	XX-1054
Cynthia Erickson	Tanana Commercial	756-9123
Mike	United Util.	388-3426

8/17/16 Tanana Community Hall RDC

0800 At Wrights check in for flight
0836 - Fly FAI - TAL
0926 Arrived in TAL
Got ride to tribal offices
Met Shannon
Kathleen is on her way
Met Kathleen. Jeff (City Mgr) came by.
Got truck from the City
1100 Picked up Kathleen and headed to the site.
Amazing weather, clear ~65°F
Lot 7, Block 11 is about the same as in
SLW's 2014 photographs.
Pump along Yukon River bank remains.
There is a 4-in. fuel line running from
the pump toward the site underground.
Pump is a J.I.C.T. McGowan Co. pump
Looks to be older than 1958, perhaps 1930s vintage.
1130 Charlie Wright stopped by (Toʼsahaa)
He already marked out water and sewer lines,
which run down the middle of Front St. and
Kayukuk St. (see site sketch)
Mike w/United Utilities/CCI will be by later
today to locate phone line.
Electric appears to be overhead in the area
Need to confirm w/ Tanana Power Co.
1250 Began trying to track fuel piping with the
metal detector
Pipe heads straight from pump toward
road but fades ~20 ft. from pump
Unable to pick up consistent linear signal on
other side of road. Only small blips, likely from
small buried pieces of metal.
Scrambled down the bank to look for any signs
of fuel header piping. Partly submerged right
at base of slope I found a pipe fitting
with tattered remnants of 4-in. flexible hose,
but no permanent piping
1340 Met with Pat Moore and Jeff Weltzin
at the City. Pat will likely operate the backhoe

8/17/16 Tanana Comm. Hall RDC

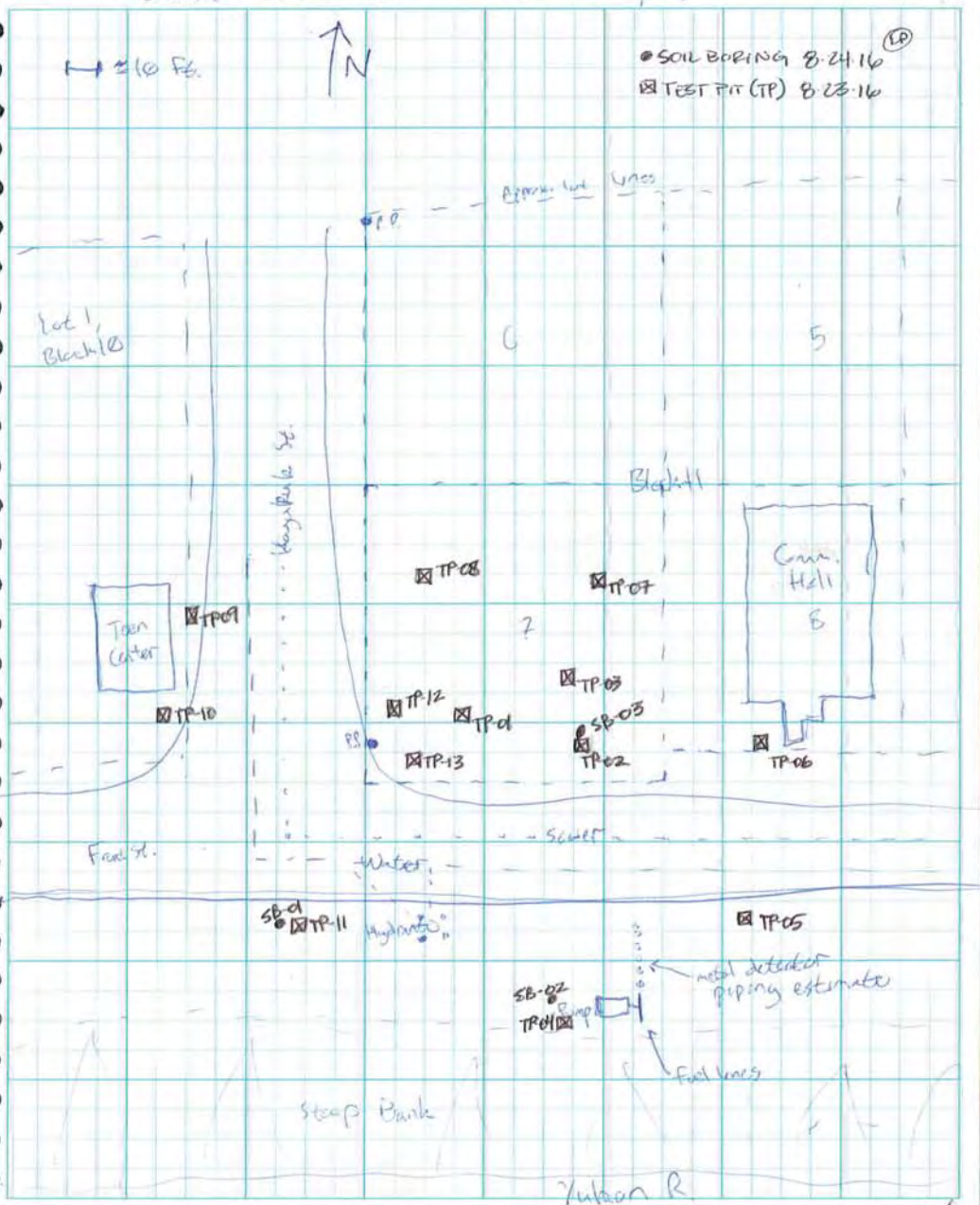
~1345 Went with Kt to look at landfarm ~~by~~ at the landfill.
Landfarm is from the old Tanana Power Co. site
Another landfarm was created by the tribe from the IHS Hospital site, but the City tills it.

1416 Called Mike ~~(GCI)~~ (United Utilities) again. He has no locater with him on site but will come back out on Sunday to locate their line.
Digline request was due today

1500 Flew TAL → FAI

1600 Arrived. Returned metal detector.

Tanana Comm Hall RDC 8/17/16



8.23.16 TANANA COMMUNITY HALL 65°F, partly sunny DAVIS

0745 Check in at Warbelows.

0930 Arrive in Tanana. Met with Pat Moore (city). Receive tour of city + rental truck. Pat shows city landfill where contaminated soil from initial discovery is located. Interested in recommendations for disposal or removal of that soil along with site cleanup.

1015 Check into hotel. Check utility locate at site. Check in w/ Shannon + Kathleen. Review investigative strategy w/ Shannon. Will give update at end of day.

1130 Onsite to mark shallow test pit locations + prep for sampling.

1330 BACKHOE from city on site. Thomas Moore is operator. Tailgate safety meeting. Begin digging test pits within source area. Start at TP-01, move to TP-02, then TP-03. At TP-01 Bunker C contamination observed at 0.8-1.4 ft bgs, as expected. Two inch metal piping pulled from pit. Appears to be isolated. Did not chase pipe to the east. Photos 2058-2059 show north sidewall, photos 2069-2070 show west sidewall. AT TP-02, only thin layer of Bunker C observed at 1.0-1.2' bgs on north sidewall, other sidewalls had no visible Bunker C. AT TP-03, encountered 3" thick cedar floor boards from building that housed tanks. Consistent w/ reports from Pat Moore (city) + Thomas Moore (city). During drainage ditch install they removed flooring and contaminated soil from south boundary along ditch and from area along the eastern boundary. Thomas estimates floor footprint to have been approx 40'x20'. See photos 2060-2068 for TP-03 excavation. Continued with parameter test pits. See datasheets for details. Charlie Wright reports that 2" piping crossing the road toward the pump location was pulled during sewer line install. Some diesel was released from pipes during removal. Soil was taken to landfill + backfilled w/ gravel. Only sporadic readings observed w/ the pipe locator on north side of road. Pipe appears to end ~10' from road on southside.

1430 Kathleen Turay stops by site, observed contamination + wood floor boards at TP-03.

1500 Begin sampling test pits. See data sheets for sample IDs + PID results. TP-02 had elevated PID (113ppm) at 2.0 bgs on north sidewall. TP-03 had PID reading of 60 ppm at 2.1 bgs immediately below Bunker C contamination layer. See photos 2072-2073 for sample location at TP-03.

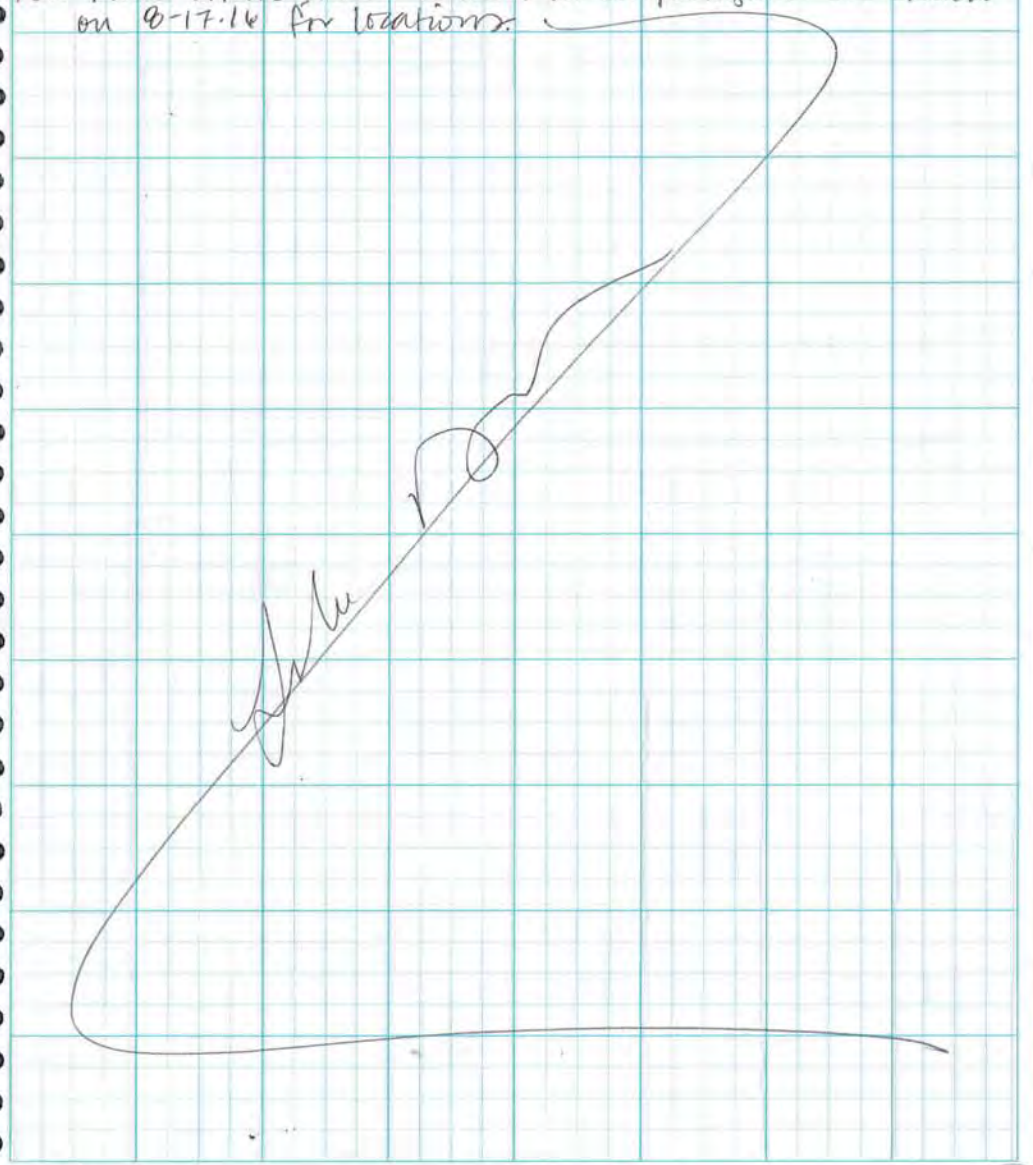
1800 Completed sampling. Thomas completed backfill of test pits.

DAVIS

DAVIS TANANA COMMUNITY HALL 65°F, partly sunny 8.23.16

1800 COLLECTED GPS locations of test pits. PID screening samples were emptied back into individual test pits prior to fill.

1830 Davis offsite back to hotel for sample mgmt. See sketch on 8-17-16 for locations.

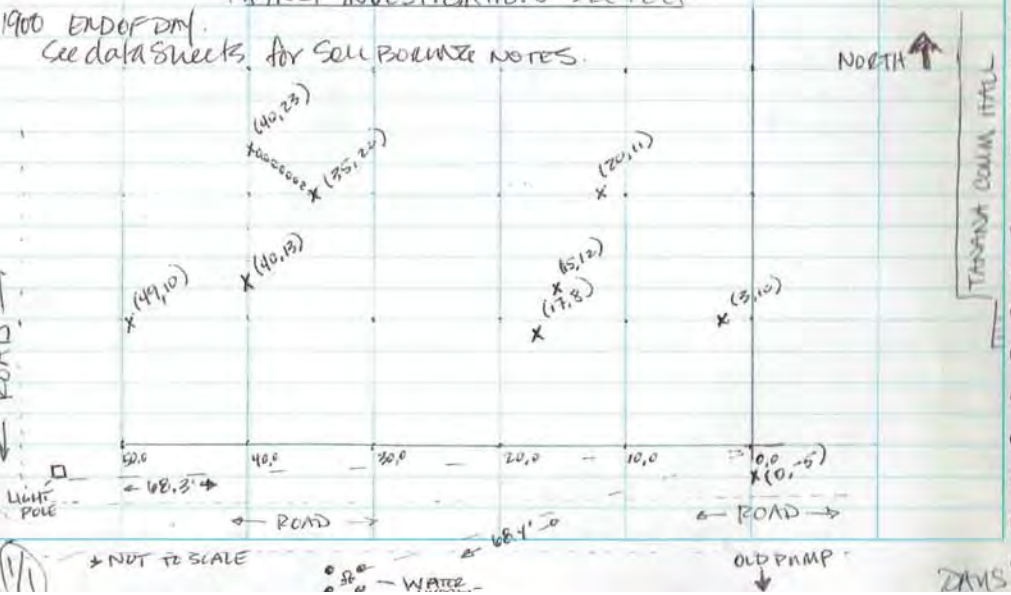


DAVIS

8-24-16 TANANA COMMUNITY HALL DAVIS

0800 Complete field notes and send progress update to tribe.
1030 Drillers arrive to Tanana. Update on project. Drillers leave to check on barge + gear. Talk w/ Rodney, based on PID results, decide to move deep soil boring closer to TP-02. Davis to return to site to hand dig west boundary of contamination.
1130 Break for lunch
1200 Barge arrives. Drillers go to pickup rig + gear. Davis onsite Dig extra test pit (TP-12) at west boundary, approx 17' north of light pole. Total depth 18'. No sign of Bunker C contamination 0-0.5': sandy gravel, 0.5-18 brown/grey silt. Took PID sample at 17-18' bgs. PID = 0.1 ppm. Took ~~GPS~~ GPS location Dig another test pit 12' east of the light pole. Total depth 19 ft bgs. Named TP-13. Encountered what initially looked like tar layer at 1.0-1.4' bgs. Upon further examination looks more like charred wood debris remains. Took PID at layer. PID = 0.1 ppm. Took PID sample at 1.8-1.9' bgs. PID = 0.2 ppm TOOK GPS location. See photos 2077 - 2082 for TP-13. See photos 2074 - 2078 for TP-12.
Laid 10 x 10 ft grid on site to scan for piping. No linear connected signals observed. Metal piping (2") appears to be segmented + scattered throughout site. Only isolated signals.

PIPING INVESTIGATION SKETCH



1900 END OF DAY.
See data sheets for soil boring notes.

1/1

DAVIS

60°F, rain

DAVIS TANANA COMMUNITY HALL 8-25-16

0800 Complete notes. Call + update Andrew. Discuss shallow water encountered at SB-03. Decide to try to purge H_2O at 12' bgs. If cannot develop then will drive down to 25', consistent with other TWPs.
0900 Mobilize to site. Begin installing TWP-01 at SB-01 location. Drive rod to 25' bgs. Screen interval 21.5 - 25' bgs. Purge approx 1.5 gallons from TWP-01. (4000 mL)
1015 Begin sampling GW at TWP-01. Collect 3 voas (BTEX/GRO) 2-250 mL HCl (DRO/RRO) + 2 250 mL (PAHs)
1030 Move to SB-02, install TWP-02 at 25 bgs. Screen interval 21.5 - 25 bgs. Develop well - Purge approx 550mL.
1100 Begin sampling at TWP-02 Collect Primary + Duplicate samples. See sample summary for IDs.
1115 Set up on SB-03. Advance TWP to 14 bgs. Screen interval ~~14~~ 10.4 - 14 bgs. Try to capture H_2O based on saturation observed during SB-03. Unable to pull any H_2O. Assume frozen layers of soil in borings that melted before core could be profiled. Move slightly over and advance again to 25 ft bgs. Screen interval 21.5 - 25' bgs. Purge approx 750 mL.
1215 Collect samples at TWP-03. See sample summary. All purge H_2O and decon water was poured through GAC filter and onto ground surface. No sheen observed in any groundwater well. The entire site, especially around the area of TP-02 + TP-03 had significant amounts of sheen with slight diesel odor. See photos 2096 - 2098. Will notify tribe to keep people clear of area. Pulled up all pin flags + ensured test pits were all backfilled.
1300 Offsite. Head back to B + B for sample mgmt + decomb. Send update email to tribe + notify of sheen at site.
1645 Drive to landfill + dispose of IDW. Took photos of soil + debris removed from site during initial discovery/ditch install. Approximately 15 cy of soil + wood debris on liner. See photos 2100 - 2101.
While onsite during TWP-03 sampling, dug to contaminated layer + took headspace sample directly from Bunker C layer. PID reading of 62.5 ppm. All boreholes were sealed w/ bentonite + backfilled prior to leaving site.
1800 Depart Tanana for Fairbanks.
1850 Arrive in FBX. Store samples.

DAVIS

1/1

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.019	TP-01	1 of 1

PROJECT NAME	TANANA COMM HALL	METHODOLOGY / EQUIPMENT	BACKHOE
SITE	TANANA COMM. ~~LOT~~ HALL	# OF SAMPLES	3
DATE	8.23.16	SAMPLE TYPE	DRO/RRO
CLIENT	ADEC	NORTHING	
GEOLOGIST	DAVIS	EASTING	
TOTAL DEPTH	2.5	ELEVATION	

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						(0.6) ~~0.5~~ - silty gravel — WEST SIDEWALL DESCRIPTION
1						0.8 — 1.4 bunker C tar
			X			PID: 0.3 ppm @ 1.6 bgs below tar layer
2						2.5 - brown silt
3						SAMPLES COLLECTED FROM WEST & NORTH SIDEWALL WEST SIDEWALL: 16-TAL-TP-01-1.0-1.3 @ 1300 16-TAL-TP-01-2.4-2.5 @ 1305 FOR DRO/RRO
4						NORTH SIDEWALL - 4.5' from west sidewall 16-TAL-TP-01-2.5-2.6 @ 1310 FOR DRO/RRO
5						
6						
7						PHOTOS: 2069-2070 WEST SIDEWALL 2058-2059 : NORTH SIDEWALL
8						
9						

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
202666.019	TP-02	1 of 1

PROJECT NAME: TANANA COMM. HALL
SITE: same
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.5

METHODOLOGY / EQUIPMENT: Backhoe
OF SAMPLES: 2
SAMPLE TYPE: see below
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents (particle distribution and particle shape), density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						NORTH SIDEWALL DESCRIPTION
1						1.0 sandy gravel 0.2' of slight tare layer - 0.2"
2			⊗			PID = 113 ppm
						2.5 - brown silt
3						~~no tar layer visible~~ (LP)
4						SAMPLES COLLECTED FROM NORTH SIDEWALL
5						16-TAL-TP-02-1.1-1.3 @ 1315 FOR DRO/RRO
						(D) ~~16-TAL-TP-2.2-2.5~~ @ 1320 16-TAL-TP-02-2.2-2.5 DRO/RRO/PAH/BTEX/PCB/metals
6						
7						NO BUNKER C OBSERVED ON SOUTH SIDEWALL
8						
9						

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.019	TP-03	1 of 1

PROJECT NAME: TANANA COMM
SITE: HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 3.0'

METHODOLOGY / EQUIPMENT: BACKHOE
OF SAMPLES: 2 + DUP
SAMPLE TYPE: see below
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						sandy gravel | SOUTH SIDEWALL DESCRIPTION
1						0.4' - hardwood flooring smeared w/ tar
2			X			2.0 brown tar PID - 60.1 ppm
3						brown silt
4						SAMPLE IDs: 16-TAL-TP-03-1.5-1.8 @ 1325 FOR DRO/RRO/BTEX/PAH/PCBs/METALS
5						DUP ID: 16-TAL-TP-20-1.5-1.8 @ 1330 FOR DRO/RRO/BTEX/PAH/PCBs/METALS 16-TAL-TP-03-2.8-3.0 @ 1335 DRO/RRO
6						PHOTOS: 2060 - 2068 ↳ samples: 2072-2073
7						
8						
9						

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.019	TP-04	1 of 1

PROJECT NAME: TANANA
SITE: COMMUNITY HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.5

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: 1
SAMPLE TYPE: see below
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						0.5 organics | EAST SIDEWALL DESCRIPTION
1						Sandy silt
						1.7
2			*			PID: 3.3 ppm
						2.5 brown silt
3						SAMPLE IDS: 16-TAL-TP-04-1.0-1.2 @ 1340 FOR DRO/RRO
4						
5						
6						PITOTO: 2071 w/ Pump in frame.
7						
8						
9						

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
	TP-05	1 of 1

PROJECT NAME: TANANA
SITE: COMM HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: ~~(2.3)~~ 2.3

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: see below
SAMPLE TYPE: " "
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						0.4 organics — NORTH SIDEWALL
1						PID: 1.1 ppm
			X			
2						2.5 brown silt
3						SAMPLE ID: 16-TAL-TP-05-1.0-1.2 @ 1345 FOR PRO/DRO
4						
5						
6						
7						
8						
9						

Ahtna Engineering	TEST PIT LOG	PROJECT NUMBER: 208666.019	TEST PIT NUMBER: TP-06	SHEET: 1 of 1

PROJECT NAME	TANANA COMM.	METHODOLOGY / EQUIPMENT	BACKHOE
SITE	HALL	# OF SAMPLES	1
DATE	8.23.16	SAMPLE TYPE	DRO/RRO
CLIENT	ADEC	NORTHING	
GEOLOGIST	DAVIS	EASTING	
TOTAL DEPTH	2.7	ELEVATION	

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						NORTH SIDEWALL
						sandy gravel
1						
						1.6
2			X			PID: 1.6ppm
						brown silt
2.7						2.7
3						
4						SAMPLE ID: 16-TAL-TP-06-1.3-1.5 @ 1350 FOR DRO/RRO
5						
6						
7						
8						
9						

Ahtna Engineering

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
	TP-07	1 of 1

PROJECT NAME: TANANA
SITE: COMM. HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.5

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: 1
SAMPLE TYPE: DRO/RRO SOIL
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						0.5 - sandy gravel ↓ SOUTH SIDEWALL
1						1.5 brown silt
2			X			1.9↓ dark brown silt PID: 0.9 ppm
3						2.5↓ brown silt.
4						SAMPLE ID: 16-TAL-TP-07-1.4-1.5 @ 1355 FOR DRO/RRO
5						
6						
7						
8						
9						

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.019	TP-08	1 of 1

PROJECT NAME	TANANA	METHODOLOGY / EQUIPMENT	BACK HOE
SITE	COMM HALL	# OF SAMPLES	1
DATE	8.23.16	SAMPLE TYPE	DRO/RRO SOIL
CLIENT	ADEC	NORTHING	
GEOLOGIST	DAVIS	EASTING	
TOTAL DEPTH	2.5'	ELEVATION	

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						@ EAST SIDEWALL
1						1.0 Sandy gravel
2			X			PID: 0.7 ppm
						2.5 brown silt
3						
4						SAMPLE ID:
						16-TAL-TP-08-1.2-1.3 @1400
5						FOR DRO/RRO
6						
7						
8						
9						

TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.09	TP-09	1 of 1

PROJECT NAME: TANANA
SITE: COMM. HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.5'

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: 1
SAMPLE TYPE: DRO/RRO SOIL
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						EAST SIDEWALL
1						↓
2			X			2.0 silty gravel PID: 0.8 ppm
						2.5 brown silt
3						
4						SAMPLE ID:
5						16-TAL-TP-09-2.1-2.3 @ 1405
6						FOR DRO/RRO
7						
8						
9						

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TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.019	TP-10	1 of 1

PROJECT NAME: TANANA
SITE: COMM HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.2

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: 1
SAMPLE TYPE: DRO/RRO
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						EAST SIDEWALL
						0.5 silty gravel
1						0.9' sandy gravel
						1.0 dark brown silt
			X			PID: 0.7 ppm
2						2.2 brown silt.
3						
						SAMPLE ID:
4						16-TAL-TP-10-1.0-1.2 @ 1410
						FOR DRO/RRO
5						
6						
7						
8						
9						

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TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20266.049	TP-11	1 of 1

PROJECT NAME: TANANA
SITE: COMM. HALL
DATE: 8.23.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 2.7

METHODOLOGY / EQUIPMENT: BACK HOE
OF SAMPLES: 1
SAMPLE TYPE:
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES:

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents (particle distribution and particle shape), density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						NORTH SIDEWALL
1						0.8 sandy gravel
2			X			PID: 0.6 ppm
3						2.7 brown silt
4						SAMPLE ID: 16-TAL-TP-11-1.5-1.7 @ 1415 FOR DRO/RRO
5						
6						
7						
8						
9						

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TEST PIT LOG

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
20666.019	TP-12	1 of 1

PROJECT NAME: TANANA COMM
SITE: KALL
DATE: 10.24.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 1.8'

METHODOLOGY / EQUIPMENT: Hand Dug/Shovel
OF SAMPLES: —
SAMPLE TYPE:
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES: approx. 17' north of light pole.

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						0.5 sandy gravel
1						↓
2			X			1.8 Brown silt
3						
4						
5						
6						
7						
8						
9						

PID at 1.7-1.8' bgs
PID = 0.1 ppm

NO sign of bunker C contamination

see photos + GPS location.

TEST PIT LOG

Ahtna Engineering

PROJECT NUMBER:	TEST PIT NUMBER:	SHEET:
70266.09	TP-13	1 of 1

PROJECT NAME: TANANA COMM
SITE: HALL SITE
DATE: 8.24.16
CLIENT: ADEC
GEOLOGIST: DAVIS
TOTAL DEPTH: 1.9' bgs

METHODOLOGY / EQUIPMENT: Shovel, hand dig
OF SAMPLES: —
SAMPLE TYPE: —
NORTHING:
EASTING:
ELEVATION:

ADDITIONAL NOTES: approx. 12' east of light pole. see gps.

DEPTH (FEET)	WATER OBSERVED (FEET BGS)	CAVING OBSERVED (FEET BGS)	PID	TIME	GROUP SYMBOL	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents (particle distribution and particle shape), density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0						0.5 sandy gravel brown silt
1						TAR LAYER 1.0-1.4' bgs.
2						2 brown silt
3						TOOK PID @ 1.9 bgs = 0.1 ppm PID from tar/wood layer = 0.1 ppm.
4						TAR layer may also be charred wood/debris upon further examination.
5						
6						
7						
8						
9						

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SOIL BORING LOG

Ahtna Engineering

PROJECT NUMBER:	BORING NUMBER:	SHEET:
20266.19	SB-01	1 of 2

Project Name: TANANA COMMUNITY HALL
Client: ADEC
Geologist: DAVIS
Date: 8.24.16
Weather: 60°F, Cloudy
Drilling Company: GeoTek
Rig Type/ Drilling:
Boring Size: 2"
Hammer Drop:
Sample Method:
# of Samples:
Total Depth: 20
Depth to GW:
Northing/ Easting:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

SAMPLE ID:
16-TAL-SB-01-18.3-18.7 (EA)
@1640

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0							
		60	36	0.1			SILT BROWN DAMP
1			5				Gravel DAMP
2				0.1			
3				0.1			brown silt damp
4				0.1			brown silt, damp
							& grey silt.
5				0.1			brown silt, damp
6		50	4	0.1			
7				0.1			
8				0.1			
9				0.1			silty gravel, ~~damp~~ moist /GC

SOIL BORING LOG

Ahtna Engineering

PROJECT NUMBER:	BORING NUMBER:	SHEET:
20266.019	SB-01	2 of 2

Project Name: TANANA COMM ITTLE
Client:
Date: 8.24
Drilling Company:
Boring Size:
Sample Method:
Total Depth:
Northing/Easting:
Site:
Geologist: DAVIS
Weather:
Rig Type/Drilling:
Hammer Drop:
# of Samples:
Depth to GW:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents (particle distribution and particle shape), density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
10							silty gravel moist — sleeve got stuck in core, had to pound out. Estimated lithology
11				0.0			
12							gravel w/sand damp
				0.1			
13							silty sand, brown damp
14				0.1			sandy gravel, damp
15							sandy gravel, damp
				0.2			
16		5.0	4.0				gravel w/sand, grey + brown, damp
17				0.1			sandy gravel, brown moist
18				0.1			18.5 gravel, wet groundwater smear zone
			SAMPLE				
19				0.2			gravel saturated, grey/brown

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SOIL BORING LOG

PROJECT NUMBER:	BORING NUMBER:	SHEET:
20266.019	SB-02	1 of 2

Project Name: TANANA COMMUNITY HALL
Site:
Client: ADEC
Geologist:
Date: 8.24.16
Weather:
Drilling Company: Geotek
Rig Type/ Drilling:
Boring Size: 2"
Hammer Drop:
Sample Method:
# of Samples:
Total Depth: 20
Depth to GW:
Northing/ Easting:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

Set up on SB 02 @ 1645

SAMPLE ID:

16-TAL-SB-02-19.0-19.6

TIME: 1735

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES
0					0.4		DARK BROWN SILT Damp
1		60	4.4	0.0			
2				0.0			
3				0.0			
4				0.0			
5				0.0			BROWN SILT - DAMP
6		3.7		0.0			
7		5.0		1.0			
8				0.5			BROWN SILT - DAMP
9				0.4			Sandy gravel grey brown / damp
				0.4			

(color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)

SOIL BORING LOG

Ahtna Engineering

PROJECT NUMBER:	BORING NUMBER:	SHEET:
20166.019	SB-02	2 of 2

Project Name: TANANA CUMM HALL SITE
Client:
Date: 8.24.16
Drilling Company:
Boring Size:
Sample Method:
Total Depth:
Northing/Easting:
Geologist: DAVIS
Weather:
Rig Type/Drilling:
Hammer Drop:
# of Samples:
Depth to GW:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES
10							
11		3.8 / 5.0		0.1			sandy gravel, grey brown, damp
12				0.0			sandy gravel, grey, brown, damp
							silty gravel, brown, moist
13				0.0			
14				0.0			sandy gravel, greybrown, damp
15				0.0			gravelly sand, brown, damp
16				0.0			gravelly sand, brown + grey, damp
17		4.6 / 5.0		0.0			
18				0.0			gravelly sand grey + brown, moist
19				0.0			silty sand, brown, wet
20				0.0			

Stat Pipe

SOIL BORING LOG

Ahtna Engineering

PROJECT NUMBER:	BORING NUMBER:	SHEET:
10266.01	SB-03	1 of 2

Project Name: TANANA COMM HALL
Client:
Geologist: DAVIS
Date: 8.24.16
Weather:
Drilling Company: GeoTek
Rig Type/ Drilling:
Boring Size: 2"
Hammer Drop:
Sample Method:
# of Samples:
Total Depth:
Depth to GW:
Northing/ Easting:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

SAMPLE IDs:

16-TAL-SB-03-1.6-1.8 @ 1800 (D)

16-TAL-SB-03 5.5-6.0 @ 1810

DUP ID: 16-TAL-SB-20-5.5-6.0 @ 1820

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0							sandy gravel, brown, damp
1		3.4	8.0		1.1		grey gravel, dry
							brown gravel, damp
							0.1 - layer of Bunker C 1.1-1.2
							1.2-1.6 wood board
2		5.0		0.0	1.5		1.6-1.7 layer of Bunker C
							2.5 - brown silt, damp
3				1.4			3.5' brown silt, moist
4				0.4			
5				0.0			brown + grey silt, damp
6		3.6		0.1			
7		5.0		0.3			7.2 brown silt, wet
8				0.0			
							8.5 brown silt, wet to saturated
9				0.1			9.5 -> brown & clay, wet
							silty gravel, wet to saturated

Heated headspace 2.5-2.7' bgs 1.5 ppm

Stained

SOIL BORING LOG

PROJECT NUMBER:	BORING NUMBER:	SHEET:
20266019	SB-03	2 of 2

Project Name: TANANA CROSSING HALL
Client: ADEC
Geologist: DAVIS
Date: 8.24.16
Weather:
Drilling Company:
Rig Type/ Drilling:
Boring Size:
Hammer Drop:
Sample Method:
# of Samples:
Total Depth:
Depth to GW:
Northing/ Easting:
Elevation:

LOCATION SKETCH/EXTRA FIELD NOTES: [surface condition, ie. Asphalt, grass]

N

DEPTH (FEET)	BLOWS/FT	INCHES DRIVEN	INCHES RECVED	PID	TIME	USCS Classification	SOIL DESCRIPTION AND NOTES (color, major constituents/minor constituents [particle distribution and particle shape], density, plasticity, cohesiveness, moisture content, fracturing, weathering, depositional environment, stratigraphic unit)
0							silty gravel, brown wet to saturate
1				0.0			sandy gravel, brown, wet to saturated
2		4.6/5.0		0.0			sandy gravel, totally saturated brown
3				0.0			3.2 sandy silt brown, wet 3.6
4				0.0			
5				0.1			5.0 sandy gravel, saturated, brown
6		4.9/5.0		0.0			sandy gravel, saturated brown
7				0.0			silt brown, saturated
8				0.0			sandy gravel, brown saturated
9				0.0			silt, brown, saturated
							sandy gravel, brown saturated

for desaturated

APPENDIX B

PHOTOGRAPHIC LOG

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Photograph 1: Excavation of TP-03 using backhoe provided by the City of Tanana.

Photograph 2: Bunker C tar layer observed on west sidewall of TP-01.

Photograph 3: Bunker C tar layer observed on north sidewall of TP-01.

Photograph 4: Wooden planks covered in tar, excavated from TP-03.

Photograph 5: Location TP-03 showing wood layer and Bunker C contamination. Samples were collected from tar layer and from the sidewall at the base of the test pit.

Photograph 6: Charred wood debris layer at TP-13.

Photograph 7: Screening soil cores at SB-01. View to the west.

Photograph 8: Deep soil boring location SB-02. Yukon River in background.

Photograph 9: Soil core from SB-03 showing wooden planks and Bunker C tar layers.

Photograph 10: Groundwater sampling setup at TWP-01. Yukon River in background.

Photograph 11: Geoprobe® 6620 DT series direct push drill rig installing TWP-03.

Photograph 12: Sheen observed on ground surface following rains.

Photograph 13: Material from 2014 ditch excavation stored at Tanana Landfill.

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APPENDIX C

SOIL BORING AND TEST PIT LOGS

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SOIL BORING LOG

Boring Number: SB-01
Project Number: 20266.019

Project Name Tanana Community Hall
Site Tanana Community Hall
Client ADEC
Field Scientist/Engineer Davis
Date 8/24/2016
Weather 60 °F, cloudy
Total Depth 20 feet
Boring Size 2 -inch

Recovery Device Macro Core
Device Diameter 2 -inch
Sample Method Macro Core
# of Samples 1
Drilling Company GeoTek Alaska
Rig Type Geoprobe 6620
Hammer Drop & Weight N/A
Associated Points N/A

X/Y Coordinates 65.169659/-152.070416
X/Y Datum WGS84
Ground Elevation N/A
Elevation Datum N/A
Extra Field Notes:

DEPTH (ft)	ANALYTICAL SOIL SAMPLE ID	In Situ PID (ppm)	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES	RECOVERED LENGTH (in) / DRIVEN LENGTH (in)
0					
		0.1		SILT brown; damp.	
		0.1		GRAVEL damp.	
		0.1		SILT brown; damp.	39.5/60
		0.1			
		0.1		SILT gray and brown; damp.	
5					
		0.1		SILT brown; damp.	
		0.1			
		0.1			50.5/60
		0.1			
		0.1		SILTY GRAVEL moist.	
10					
		0.0			
		0.1		SANDY GRAVEL damp.	
				SILTY SAND brown; damp.	N/A
		0.1			
				SANDY GRAVEL damp.	
15					
		0.2			
		0.1		GRAVEL WITH SAND brown and gray; damp.	
				SANDY GRAVEL brown; moist.	
		0.1		GRAVEL wet.	48/60
	16-TAL-SB-01-18.3-18.7				
		0.2		Brown and gray; saturated.	
20					

End of Boring: 20 feet bgs.

SOIL BORING LOG

Boring Number: SB-02
Project Number: 20266.019

Project Name Tanana Community Hall
Site Tanana Community Hall
Client ADEC
Field Scientist/Engineer Davis
Date 8/24/2016
Weather 60 °F, cloudy
Total Depth 20 feet
Boring Size 2 -inch

Recovery Device Macro Core
Device Diameter 2 -inch
Sample Method Macro Core
# of Samples 1
Drilling Company GeoTek Alaska
Rig Type Geoprobe 6620
Hammer Drop & Weight N/A
Associated Points N/A

X/Y Coordinates 65.16954/-152.070539
X/Y Datum WGS84
Ground Elevation N/A
Elevation Datum N/A
Extra Field Notes:

DEPTH (ft)	ANALYTICAL SOIL SAMPLE ID	In Situ PID (ppm)	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES	RECOVERED LENGTH (in) / DRIVEN LENGTH (in)
0					
		0.0		SILT dark brown; damp.	
		0.0		SILT brown; damp.	
		0.0			53/60
		0.0			
		0.0			
5		0.0			
		1.0			
		0.5			44.5/60
		0.4			
		0.4		SANDY GRAVEL gray and brown; damp.	
10		0.1			
		0.0			
		0.0		SILTY GRAVEL brown; moist.	45.5/60
		0.0		SANDY GRAVEL gray and brown; damp.	
		0.0			
15		0.0		GRAVELLY SAND brown; damp.	
		0.0		GRAVELLY SAND gray and brown; damp.	
		0.0		GRAVELLY SAND gray and brown; moist.	
		0.0			55/60
		0.0			
	16-TAL-SB-02-19.0-19.6	0.0		SILTY SAND brown; wet.	
20					

End of Boring: 20 feet bgs.

SOIL BORING LOG

Boring Number: SB-03
Project Number: 20266.019

Project Name Tanana Community Hall
Site Tanana Community Hall
Client ADEC
Field Scientist/Engineer Davis
Date 8/24/2016
Weather 60 °F, cloudy
Total Depth 20 feet
Boring Size 2 -inch

Recovery Device Macro Core
Device Diameter 2 -inch
Sample Method Macro Core
# of Samples 3
Drilling Company GeoTek Alaska
Rig Type Geoprobe 6620
Hammer Drop & Weight N/A
Associated Points N/A

X/Y Coordinates 65.169739/-152.071138
X/Y Datum WGS84
Ground Elevation N/A
Elevation Datum N/A
Extra Field Notes:

DEPTH (ft)	ANALYTICAL SOIL SAMPLE ID	In Situ PID (ppm)	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES	RECOVERED LENGTH (in) / DRIVEN LENGTH (in)
0					
		0.0		SANDY GRAVEL brown; damp.	
		0.0		GRAVEL gray; dry.	
				BUNKER C.	
	16-TAL-SB-03-1.6-1.8	1.4		WOOD.	
				BUNKER C.	44.5/60
		0.0		SILT brown; damp.	
				SILT brown; moist.	
		0.0		SILT gray and brown; damp.	
5		0.1			
	16-TAL-SB-03-5.5-6.0 16-TAL-SB-20-5.5-6.0	0.3			
		0.0			
		0.1		SILT brown; wet.	43/60
				SILT brown; wet to saturated.	
				CLAY brown; wet.	
10				SILTY GRAVEL wet to saturated.	
		0.0			
		0.0		SANDY GRAVEL brown; wet to saturated.	
		0.0			
				SANDY GRAVEL brown; saturated.	55/60
		0.0			
				SANDY SILT brown; wet.	
		0.1		SANDY GRAVEL brown; saturated.	
15		0.0			
		0.0			
		0.0			
				SILT brown; saturated.	59/60
		0.0			
				SANDY GRAVEL brown; saturated.	
		0.0			
				SILT brown; saturated.	
20				SANDY GRAVEL brown; saturated.	

End of Boring: 20 feet bgs.

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TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-01

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 3
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.16979/-152.070611
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SILTY GRAVEL.
1.0		16-TAL-TP-01-1.0-1.3		BUNKER C TAR.
2.0	0.3			SILT brown.
		16-TAL-TP-01-2.4-2.5 16-TAL-TP-01-2.5-2.6		Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-02

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 2
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.169737/-152.070433
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SANDY GRAVEL.
1.0		16-TAL-TP-02-1.1-1.3		TAR.
2.0	113	16-TAL-TP-02-2.2-2.5		SILT brown.

Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-03

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 3
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 3 feet
Ground Elevation N/A
X/Y Coordinates 65.169786/-152.070408
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SANDY GRAVEL.
1.0				HARDWOOD FLOORING SMEARED WITH TAR.
		16-TAL-TP-03-1.5-1.8 16-TAL-TP-20-1.5-1.8		BUNKER C TAR.
2.0	60.1			SILT brown.
3.0		16-TAL-TP-03-2.8-3.0		

Bottom of test pit at 3.0 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-04

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.169513/-152.070536
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				ORGANICS.
1.0		16-TAL-TP-04-1.0-1.2		SANDY SILT.
2.0	3.3			SILT brown.

Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-05

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.3 feet
Ground Elevation N/A
X/Y Coordinates 65.169521/-152.070117
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				ORGANICS.
1.0	1.1	16-TAL-TP-05-1.0-1.2		SILT brown.
2.0				

Bottom of test pit at 2.3 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-06

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.7 feet
Ground Elevation N/A
X/Y Coordinates 65.169649/-152.070014
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				
1.0		16-TAL-TP-06-1.3-1.5		SANDY GRAVEL.
2.0	1.6			SILT brown.

Bottom of test pit at 2.7 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-07

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.169851/-152.070332
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SANDY GRAVEL.
1.0		16-TAL-TP-07-1.4-1.5		SILT brown.
2.0	0.9			SILT dark brown.
				SILT brown.

Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-08

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.169891/-152.070611
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				
1.0	0.7	16-TAL-TP-08-1.2-1.3		SANDY GRAVEL.
2.0				SILT.

Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-09

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.5 feet
Ground Elevation N/A
X/Y Coordinates 65.169933/-152.070987
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				
1.0				SILTY GRAVEL.
2.0	0.8	16-TAL-TP-09-2.1-2.3		SILT brown.

Bottom of test pit at 2.5 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-10

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.2 feet
Ground Elevation N/A
X/Y Coordinates 65.169835/-152.071137
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SILTY GRAVEL.
1.0	0.7	16-TAL-TP-10-1.0-1.2		SANDY GRAVEL.
				SILT dark brown.
2.0				SILT brown.

Bottom of test pit at 2.2 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-11

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/23/2016
Weather 65 °F, partly sunny
Equipment Backhoe
Sample Method Discrete grab
Test Pit Length (ft) 3
# of Samples 1
Test Pit Width (ft) 3
Depth to Groundwater N/A
Total Depth 2.7 feet
Ground Elevation N/A
X/Y Coordinates 65.169655/-152.07108
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SANDY GRAVEL.
1.0				SILT brown.
2.0	0.6	16-TAL-TP-11-1.5-1.7		

Bottom of test pit at 2.7 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-12

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/24/2016
Weather 60 °F, cloudy
Equipment Shovel
Sample Method N/A
Test Pit Length (ft) 1
# of Samples 0
Test Pit Width (ft) 1
Depth to Groundwater N/A
Total Depth 1.8 feet
Ground Elevation N/A
X/Y Coordinates 65.169811/-152.070739
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				SANDY GRAVEL.
1.0	0.1	no analytical sample		SILT brown.

Bottom of test pit at 1.8 feet.

TEST PIT LOG

Project Number: 20266.019 **Test Pit Number:** TP-13

Project Name Tanana Community Hall
Site Tanana Community Hall
Extra Field Notes:
Client ADEC
Field Scientist/Engineer Davis
Date 8/24/2016
Weather 60 °F, cloudy
Equipment Shovel
Sample Method N/A
Test Pit Length (ft) 1
# of Samples 0
Test Pit Width (ft) 1
Depth to Groundwater N/A
Total Depth 1.9 feet
Ground Elevation N/A
X/Y Coordinates 65.169774/-152.070728
Datum WGS84

DEPTH (ft)	PID (ppm)	ANALYTICAL SOIL SAMPLE ID	SOIL GRAPHIC	SOIL DESCRIPTION AND NOTES
0.0				
				SANDY GRAVEL.
1.0		no analytical sample		SILT brown.
				TAR OR CHARRED WOOD/DEBRIS.
				SILT brown.
	0.1			

Bottom of test pit at 1.9 feet.

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APPENDIX D

ANALYTICAL RESULTS

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APPENDIX D-1

DATA QUALITY ASSESSMENT

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Arctic Data Services LLC

PO BOX 345
ESTER, AK 99725
907-457-3147

Date:	11/18/2016
Project name:	Tanana Community Hall Brownfield Assessment
Laboratories:	SGS North America, Anchorage
Sample Delivery Groups:	1168490
Reviewed by:	Rodney Guritz
Title:	Principal Chemist

To: Leslie Davis
Ahtna Engineering Services, LLC
1896 Marika Road, Suite 8
Fairbanks, AK 99709

Data Quality Assessment

This letter summarizes the findings of a data quality assessment (DQA) conducted by Arctic Data Services, LLC (ADS) for the above-referenced project data. Precision, accuracy, sensitivity, representativeness, comparability, and completeness of the data was evaluated by reviewing laboratory-supplied quality assurance/quality control (QA/QC) information as well as conducting independent QA/QC checks on the data. The review was conducted in accordance with ADS standard data review procedures, informed by guidance from various state and federal documents, including the Alaska Department of Environmental Conservation (ADEC) Environmental Laboratory Data and Quality Assurance Requirements technical memorandum (2009), the US Environmental Protection Agency (USEPA) National Functional Guidelines for Superfund Organic Methods Data Review (2008), and the US Army Corps of Engineers (USACE) Engineering Manual (EM) 200-1-10 Guidance for Evaluating Performance-Based Chemical Data (2005). In the absence of project-specific control limits, analytical QC sample recoveries and RPDs were compared to laboratory control-charted limits. Field-duplicate RPDs were compared to ADEC-recommended data quality objectives (DQOs).

ADEC data review checklists were completed for each sample delivery group (SDG), and are attached to this DQA. Also attached is a table summarizing data qualified in the course of our review (Table 1). In the case where a sample result was affected by more than one sample-handling anomaly or QC failure, a determination was made as to which qualifier is most conservative, and only that qualifier is retained and reported. The following sections provide a summary of our findings for each QA/QC element reviewed; anomalies that had no impact to data quality are discussed in the ADEC data review checklist, and are not further described herein.

Sample Preservation, Handling, Custody, and Holding Times

Sample receipt forms were reviewed to check that samples were received in good condition, properly preserved, and within the required temperature range. Chain of custody forms were reviewed to confirm that

custody was not breached during sample handling. Dates of sample collection, preparation, and analysis were compared to check that method holding times were not exceeded.

There were no sample preservation, handling, custody, or holding-time anomalies that affected data quality for this project.

Analytical Sensitivity

Analytical sensitivity was evaluated by checking that reporting limits were below the applicable screening and/or cleanup levels where target analytes were not detected. Soil-sample LODs were compared to ADEC 18 AAC 75.340 (2012) Table B1 and B2 Soil Cleanup Levels (SCLs; under-40-inch zone, most-stringent pathway).

Soil-sample LODs were below soil cleanup levels for non-detect results, with the exception of dibenzo(a,h)anthracene, naphthalene, and total PCBs (sum of LODs for individual Aroclors) for sample *16-TAL-TP-03-1.5-1.8* and its duplicate *16-TAL-TP-20-1.5-1.8*. DRO, RRO, and numerous PAHs exceeded SCLs in these samples. No individual Aroclors were detected in the samples, nor in the sample from nearby TP-02 which had acceptable LODs. Overall data usability is not affected by the elevated LODs.

Method Blanks

The laboratory analyzed and reported a method blank (MB) for each preparatory batch, to check for laboratory-based sample contamination. No analytes were detected above limits of quantitation (LOQs) in method blanks associated with project samples. However, multiple analytes were detected between the detection limit (DL) and LOQ in method blanks associated with soil analysis by 6020A and water analysis by 8270D SIM, AK102, and AK103. 2-Methylnaphthalene results for samples *16-TAL-WP-01-21.5-25.0* and *16-TAL-WP-03-21.5-25.0* and DRO results for samples *16-TAL-WP-01-21.5-25.0* and *16-TAL-WP-02-21.5-25.0* were below LOQs and within five times the corresponding MB concentration. These results are qualified ‘UB’ at the LOQ.

Trip Blanks

Trip blanks were submitted with soil samples for analysis by 8021B and water samples for analysis by AK101/8021B, to check for cross-contamination of samples during sampling, shipment, or storage. GRO was detected below the LOQ in the trip blank. GRO was also detected below the LOQ in sample *16-TAL-WP-01-21.5-25.0*. This result is considered attributable to sample cross-contamination during shipment and/or storage, and is qualified ‘UB’ at the LOQ.

Laboratory Control Samples

The laboratory analyzed and reported a laboratory control sample (LCS) for each preparatory batch, to assess laboratory extraction efficiency and analytical accuracy. In some cases, LCS duplicates (LCSDs) were used to assess analytical precision; an LCSD was reported for each analysis employing Alaska Methods (AK101, AK102, AK103). LCS and LCSD recovery information and LCS/LCSD RPD information (where available) was reviewed. There were no LCS/LCSD recovery or RPD failures.

Matrix Spike Samples

The laboratory analyzed and reported matrix spike (MS) and MS duplicate (MSD) samples to check for potential matrix interference. MS/MSD recovery and RPDs were evaluated only if the parent sample (the sample spiked for the MS/MSD) was in the project-sample set. There were no MS/MSD recovery or RPD failures affecting project-sample data quality.

Surrogate Recovery

Samples submitted for analysis of organic compounds were spiked with analyte surrogates to evaluate extraction efficiency and to check for matrix interference. Surrogate recoveries were reviewed for each project sample and analysis. There were a number of surrogate recovery failures due to dilution; these failures do not affect data quality, as dilution compromises the ability to accurately recovery surrogate spikes. The only other surrogate recovery failures were for MS/MSD samples not associated with project samples.

Field Duplicates

Field duplicate samples were collected for soil and groundwater samples. The field-duplicate collection frequency met the 10% requirement in the FSP. RPDs between field-duplicate results were calculated where at least one of the results was quantitatively detected (above the PQL). In cases where one result was above the LOQ but the other result was not detected, an RPD was calculated using the PQL for the non-detect result.

RPDs met the ADEC-recommended DQOs of 50 percent for soil samples and 30 percent for water samples.

Other QC Anomalies

The laboratory noted no other QC anomalies affecting data quality or usability.

Given the discrepancy between field observations, PID readings, and DRO/RRO results for sample *16-TAL-TP-08-1.2-1.3*, we requested a chromatogram and interpretation of the hydrocarbon signature from the laboratory. The hydrocarbon signature was distinct from the other samples with elevated DRO/RRO (attributed to Bunker C), and was consistent with a lube oil.

Summary of Data Quality Indicators

The following sections summarize the findings of the above review with respect to the six data quality indicators: sensitivity, precision, accuracy, representativeness, comparability, and completeness.

Sensitivity

Sensitivity describes the ability of the sampling and analytical methodology to meet reporting-limit objectives. LODs were below relevant cleanup levels with a few exceptions. However, samples with LODs exceeding cleanup levels contained numerous other analytes well above cleanup levels. Sensitivity is deemed sufficient for purposes of this project.

Precision

Precision is a measure of the reproducibility of repetitive measurements. Precision was evaluated based on laboratory QC-sample and field-duplicate sample RPDs. There were no RPD failures affecting data quality. Precision is deemed acceptable for purposes of this project.

Accuracy

Accuracy is a measure of the correctness, or the closeness, between the true value and the quantity detected. Accuracy was evaluated based on analyte recoveries for laboratory QC samples and recovery of surrogate spikes for project samples. There were no recovery failures affecting data quality. Accuracy is deemed acceptable for purposes of this project.

Representativeness

Representativeness describes the degree to which data accurately and precisely represent site characteristics. Representativeness is affected by factors such as sample frequency and matrix or contaminant heterogeneity, as well as analytical performance (including sensitivity, accuracy, and precision) sample cross-contamination. Samples were collected in accordance with an approved work plan, analytical precision was acceptable, and the only results affected by detections in blank samples were below LOQs as well as relevant cleanup levels. Representativeness was deemed acceptable for purposes of this project.

Comparability

Comparability describes whether two data sets can be considered equivalent with respect to project goals. Comparability is affected by factors such as sampling methodology and analytical performance (including sensitivity, accuracy, and precision). Comparability was evaluated by checking that standard analytical methods were employed and analytical performance was acceptable. Comparability was acceptable for this project.

Completeness

Completeness describes the amount of valid data obtained from the sampling event(s). It is calculated as the percentage of valid measurements compared to the total number of measurements. All project-sample results were considered usable (no data were rejected), and a completeness score of 100% was calculated for this project.

Conclusions and Limitations

Sensitivity, precision, accuracy, representativeness, comparability, and completeness were deemed acceptable, and the data are usable for the purposes of this project. Impacts to data usability from QC failures were minimal.

Our review was based solely on information provided by the analytical laboratory in the laboratory reports for the SDGs reviewed. We did not review instrument-level QC elements, such as calibration verification or internal standard response, except to the extent that the laboratory identified instrument-level anomalies in the case narrative. We did not conduct independent validation of the data (e.g. recalculating results based on instrument responses) or review any raw chemical data (e.g. chromatograms, other than for sample *16-TAL-TP-08-1.2-1.3*).

Attachments:

Table 1	Summary of Qualified Data
SGS 1168490	ADEC Data Review Checklist

Table 1
Summary of Qualified Data
Tanana Community Hall Brownfield Assessment
Data Quality Assessment

SampleID	Matrix	Method	Analyte	Units	LOQ	LOD	DL	Result	Lab Flag	Original Result	QC Flags	Note	Final Flag	Final Result
16-TAL-WP-01-21.5-25.0	Water	8270D SIM	2-Methylnaphthalene	ug/L	0.0508	0.0254	0.0152	0.0178	J	0.0178 J	UB	1	UB	0.0508 UB
16-TAL-WP-03-21.5-25.0	Water	8270D SIM	2-Methylnaphthalene	ug/L	0.0490	0.0245	0.0147	0.0225	J	0.0225 J	UB	1	UB	0.0490 UB
16-TAL-WP-01-21.5-25.0	Water	AK102	DRO	mg/L	0.600	0.300	0.180	0.353	J	0.353 J	UB	1	UB	0.600 UB
16-TAL-WP-02-21.5-25.0	Water	AK102	DRO	mg/L	0.588	0.294	0.176	0.324	J	0.324 J	UB	1	UB	0.588 UB
16-TAL-WP-01-21.5-25.0	Water	AK101	GRO	mg/L	0.100	0.0500	0.0310	0.0338	J	0.0338 J	UB	2	UB	0.100 UB

Notes

1 Analyte was detected below the LOQ in the sample and a corresponding method blank.
2 Analyte was detected below the LOQ in the sample and a corresponding trip blank.

J Estimated concentration; analyte was detected between the method detection limit and the practical quantitation limit
UB Result considered not detected due to contamination identified at a similar concentration in a corresponding blank sample

LOQ Limit of quantitation
LOD Limit of detection
DL Detection limit

APPENDIX D-2

ADEC DATA REVIEW CHECKLIST

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Laboratory Data Review Checklist

Completed by: Rodney Guritz

Title: Chemist Date: October 13, 2016

CS Report Name: Tanana Community Hall Report Date: November 2016

Consultant Firm: Arctic Data Services, LLC

Laboratory Name: SGS Anchorage Laboratory Report Number: 1168490

ADEC File Number: 780.57.004 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      □■Yes □ No □NA (Please explain.) Comments:

      Samples were hand delivered to the SGS North America Inc. receiving office in Fairbanks and transferred to their Anchorage laboratory for analysis.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      □Yes □ No □■NA (Please explain.) Comments:

      No samples were transferred to other laboratories.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      □■Yes □ No □NA (Please explain.) Comments:

   b. Correct analyses requested?
      □■Yes □ No □NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      □■Yes □No □NA (Please explain.) Comments:

      The samples were received at both locations between 0 °C and 6 °C, the acceptable temperature range listed in EPA SW-846 and adopted by reference by ADEC (18 AAC 78.090).

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

□■Yes □ No □NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

□■Yes □ No □NA (Please explain.) Comments:

Samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

□ Yes □ No □■ NA (Please explain.) Comments:

There were no sample-receiving discrepancies.

e. Data quality or usability affected? (Please explain.)

Comments:

Data quality and usability were not affected.

4. Case Narrative

a. Present and understandable?

□■Yes□ No □NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

□■Yes□ No □NA (Please explain.) Comments:

The laboratory provided a detailed case narrative noting a number of QC anomalies, including surrogate recovery failures, laboratory duplicate RPD failures, and MS/MSD recovery and RPD failures. The following sections of this checklist address these anomalies in detail.

c. Were all corrective actions documented?

□ Yes □ No □■ NA (Please explain.) Comments:

No corrective actions were required or performed.

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

Comments:

The case narrative notes no effect on sample data quality or usability. Refer to the following sections for our discussion of data quality and usability for the QC anomalies noted.

5. Samples Results
   a. Correct analyses performed/reported as requested on COC?
      □■Yes□ No □NA (Please explain.) Comments:

   b. All applicable holding times met?
      □■Yes□ No □NA (Please explain.) Comments:

   c. All soils reported on a dry weight basis?
      □■Yes□No □NA (Please explain.) Comments:

   d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
      □Yes □■No □ NA (Please explain.) Comments:

LODs exceeded soil cleanup levels for dibenzo(a,h)anthracene (samples 16-TAL-TP-03-1.5-1.8 and 16-TAL-TP-20-1.5-1.8) and naphthalene (sample 16-TAL-TP-20-1.5-1.8). The sum of LODs for individual Aroclors exceeded the Total PCB cleanup level (1 mg/kg) for sample 16-TAL-TP-03-1.5-1.8 and duplicate 16-TAL-20-1.5-1.8. No individual Aroclors were detected.

   e. Data quality or usability affected?
      Comments:

Data quality affected as described above. Samples with elevated LODs contained other analytes well above the soil cleanup level, so overall data usability was not affected.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      □■Yes□ No □NA (Please explain.) Comments:

      ii. All method blank results less than PQL?
      □■Yes□ No □NA (Please explain.) Comments:

However, the following analytes were detected between the DL and the LOQ:

Prep batch	Analyte	Method	Result
MXX30150	Chromium	SW6020A	0.168 J mg/kg
XXX36180	2-Methylnaphthalene	8270D SIM	0.0158 J ug/L
XXX36226	DRO	AK102	0.312 J mg/L
XXX36226	RRO	AK103	0.223 J mg/L

iii. If above PQL, what samples are affected?

Comments:

Results within 5x the MB concentration are qualified 'UB' at the LOQ or the sample concentration, whichever is higher. Results between 5-10x the MB concentration are considered estimated, biased high and qualified 'JH.' Results greater than 10x the MB concentration are not considered affected. The following results were affected:

Sample	Analyte	Method	Result	Flagged result
16-TAL-WP-01-21.5-25.0	2-Methylnaphthalene	8270D SIM	0.0178 J ug/L	0.0508 UB ug/L
16-TAL-WP-03-21.5-25.0	2-Methylnaphthalene	8270D SIM	0.0225 J ug/L	0.0490 UB ug/L
16-TAL-WP-01-21.5-25.0	DRO	AK102	0.353 J mg/L	0.600 UB mg/L
16-TAL-WP-02-21.5-25.0	DRO	AK102	0.324 J mg/L	0.588 UB mg/L

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

□■ Yes □ No □ NA (Please explain.) Comments:

See above

v. Data quality or usability affected? (Please explain.)

Comments:

Data quality affected as described above. Data usability was not affected as results were below cleanup levels.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

□■Yes□ No □NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

□■Yes□ No □NA (Please explain.) Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

□Yes □■No □NA (Please explain.) Comments:

LCS/LCSD recoveries were within laboratory control limits for each analysis.
There were a number of MS/MSD recovery failures; however the original samples spiked were not in our project sample set, so our results were not affected.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

□Yes □■ No □NA (Please explain.) Comments:

LCS/LCSD recoveries and RPDs were within laboratory control limits for each analysis.
There were a number of MS/MSD RPD failures and one laboratory duplicate RPD failure; however the original samples were not in our project sample set, so our results were not affected.

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

Comments:

None of the recovery or RPD failures affected project samples.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

□ Yes □ No □■NA (Please explain.) Comments:

No sample results were affected.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability were not affected.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

□■Yes □ No □NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

□Yes □■No □NA (Please explain.) Comments:

There were a number of surrogate recovery failures for the DRO, RRO, and PAH analyses that were due to dilution of the samples. Results are not considered affected by surrogate recovery failures caused by sample dilution.
There were also several surrogate recovery failures for MS/MSD samples for metals and PAH analysis. However, original samples spiked for the MS/MSDs were not in our project-sample set, so project-sample results are not affected.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

□ Yes □ No □■NA (Please explain.) Comments:

No sample results were affected by the surrogate recovery failures noted above.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

Data quality and usability were not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

□■ Yes □ No □NA (Please explain.) Comments:

Trip blanks were submitted for GRO and BTEX analysis for soil and water.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

□ Yes □ No □■NA (Please explain.) Comments:

Samples were submitted in a single cooler.

iii. All results less than PQL?

□■Yes□No □NA (Please explain.) Comments:

However GRO was detected between the DL and the LOQ in the water trip blank, at 0.0337 J mg/L.

iv. If above PQL, what samples are affected?

Comments:

GRO was detected at a similar concentration below the LOQ in sample 16-TAL-WP-01-21.5-25.0. This result is considered attributable to sample cross-contamination during shipment and/or storage, and is qualified UB at the LOQ (0.100 UB mg/L).

v. Data quality or usability affected? (Please explain.)

Comments:

Data quality affected as described above. Impact to data usability was minimal as the affected result was an order of magnitude below the relevant cleanup level.

e. Field Duplicate

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

□■Yes□No □ NA (Please explain.) Comments:

The following field-duplicate pairs were submitted:	
Primary	Duplicate
16-TAL-TP-03-1.5-1.8	16-TAL-TP-20-1.5-1.8
16-TAL-SB-03-5.5-6.0	16-TAL-SB-20-5.5-6.0
16-TAL-WP-02-21.5-25.0	16-TAL-WP-20-21.5-25.0

ii. Submitted blind to lab?

□■Yes □ No □NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

□Yes □■No □NA (Please explain.) Comments:

RPDs were within recommended DQOs, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability were not affected.

f. Decontamination or Equipment Blank (If not used explain why).

□Yes □ No □■NA (Please explain.) Comments:

Samples were collected using disposable or dedicated sampling equipment; equipment blanks were not collected.

i. All results less than PQL?

□Yes □No □ ■NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? (Please explain.)

Comments:

Not applicable (see above).

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      □ Yes □ No □■NA (Please explain.) Comments:

There were no other data flags or qualifiers.

APPENDIX D-3

LABORATORY DATA REPORT

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Laboratory Report of Analysis

To: Ahtna Engineering Svs
1896 Marika Road Suite 8
Fairbanks, AK 99709
(907)374-4750

Report Number: **1168490**

Client Project: **Tanana Community Hall**

Dear Leslie Davis,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
2016.10.04
10:57:54 -08'00'

SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

Print Date: 10/03/2016 11:29:12AM

Case Narrative

SGS Client: **Ahtna Engineering Svs**
SGS Project: **1168490**
Project Name/Site: **Tanana Community Hall**
Project Contact: **Leslie Davis**

Refer to sample receipt form for information on sample condition.

16-TAL-TP-01-1.0-1.3 (1168490001) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution.

16-TAL-TP-02-1.1-1.3 (1168490004) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution.

16-TAL-TP-03-1.5-1.8 (1168490006) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution.
8270D SIM - PAH surrogate recovery for terphenyl-d14 (312%) and 2-fluorobiphenyl (281%) do not meet QC criteria due to sample dilution (20X).

16-TAL-TP-20-1.5-1.8 (1168490007) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution.
8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (309%) do not meet QC criteria due to sample dilution (20X).

16-TAL-SB-03-1.6-1.8 (1168490019) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution.

1165033001(1349616DUP) (1349620) DUP

6020A - Metals Sample duplicate RPD for barium (33.6) does not meet QC criteria. Sample is non-homogenous for barium.

1165000013(1349567MS) (1349568) MS

6020A - Metals MS recoveries for barium (147%) and chromium (140%) do not meet QC criteria. The post digestion spike was successful.

1165033001(1349616MS) (1349617) MS

6020A - Metals MS recovery for barium (-338%) does not meet QC criteria. The post digestion spike was successful.

1165040005MS (1349823) MS

8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.
8270D SIM - PAH surrogate recovery for terphenyl-d14 (144%) does not meet QC criteria, possibly due to a non-homogeneous sample.

1165000013(1349567MSD) (1349569) MSD

6020A - Metals MSD recoveries for barium (160%) and chromium (143%) do not meet QC criteria. The post digestion spike was successful.

1165033001(1349616MSD) (1349618) MSD

6020A - Metals MSD recoveries for chromium (129%) and barium (128%) do not meet QC criteria. The post digestion spike was successful.
6020A - Metals MS/MSD RPD for barium (32.2) does not meet QC criteria. Refer to sample duplicate for RPD requirements.

1165040005MSD (1349824) MSD

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Case Narrative

SGS Client: **Ahtna Engineering Svs**
SGS Project: **1168490**
Project Name/Site: **Tanana Community Hall**
Project Contact: **Leslie Davis**

8270D SIM - PAH surrogate recovery for terphenyl-d14 (139%) does not meet QC criteria due to sample matrix.
8270D SIM - PAH MS recovery for several analyes does not meet QC criteria. Refer to the LCS for accuracy requirements.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Benzo(a)Anthracene	RP
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Benzo[b]Fluoranthene	RP
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Benzo[k]fluoranthene	RP
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Dibenzo[a,h]anthracene	RP
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Fluoranthene	RP
1168490005	16-TAL-TP-02-2.2-2.5	XMS9647	Indeno[1,2,3-c,d] pyrene	RP
1168490006	16-TAL-TP-03-1.5-1.8	XMS9647	Benzo[b]Fluoranthene	RP
1168490006	16-TAL-TP-03-1.5-1.8	XMS9647	Benzo[g,h,i]perylene	RP
1168490006	16-TAL-TP-03-1.5-1.8	XMS9647	Naphthalene	SP
1168490007	16-TAL-TP-20-1.5-1.8	XMS9647	Benzo(a)Anthracene	RP
1168490007	16-TAL-TP-20-1.5-1.8	XMS9647	Benzo[b]Fluoranthene	RP
1168490007	16-TAL-TP-20-1.5-1.8	XMS9647	Benzo[g,h,i]perylene	RP
1168490007	16-TAL-TP-20-1.5-1.8	XMS9647	Fluoranthene	RP
1349823	1165040005MS	XMS9647	Benzo(a)Anthracene	RP
1349823	1165040005MS	XMS9647	Benzo[a]pyrene	RP
1349823	1165040005MS	XMS9647	Benzo[b]Fluoranthene	RP
1349823	1165040005MS	XMS9647	Benzo[g,h,i]perylene	RP
1349823	1165040005MS	XMS9647	Benzo[k]fluoranthene	RP
1349823	1165040005MS	XMS9647	Chrysene	RP
1349823	1165040005MS	XMS9647	Fluoranthene	RP
1349823	1165040005MS	XMS9647	Pyrene	RP
1349824	1165040005MSD	XMS9647	Benzo(a)Anthracene	RP
1349824	1165040005MSD	XMS9647	Benzo[a]pyrene	RP
1349824	1165040005MSD	XMS9647	Benzo[b]Fluoranthene	RP
1349824	1165040005MSD	XMS9647	Benzo[g,h,i]perylene	RP
1349824	1165040005MSD	XMS9647	Benzo[k]fluoranthene	RP
1349824	1165040005MSD	XMS9647	Chrysene	RP
1349824	1165040005MSD	XMS9647	Fluoranthene	RP
1349824	1165040005MSD	XMS9647	Indeno[1,2,3-c,d] pyrene	RP
1349824	1165040005MSD	XMS9647	Phenanthrene	RP
1349824	1165040005MSD	XMS9647	Pyrene	RP
1355698	CCV for HBN 1744322 [XMS/9647]	XMS9647	Indeno[1,2,3-c,d] pyrene	BLC

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Laboratory Qualifiers

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

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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

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

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
16-TAL-TP-01-1.0-1.3	1168490001	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-01-2.4-2.5	1168490002	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-01-2.5-2.6	1168490003	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-02-1.1-1.3	1168490004	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-02-2.2-2.5	1168490005	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-03-1.5-1.8	1168490006	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-20-1.5-1.8	1168490007	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-03-2.8-3.0	1168490008	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-04-1.0-1.2	1168490009	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-05-1.0-1.2	1168490010	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-06-1.3-1.5	1168490011	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-07-1.4-1.5	1168490012	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-08-1.2-1.3	1168490013	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-09-2.1-2.3	1168490014	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-10-1.0-1.2	1168490015	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-TP-11-1.5-1.7	1168490016	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-SB-01-18.3-18.7	1168490017	08/24/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-SB-02-19.0-19.6	1168490018	08/24/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-SB-03-1.6-1.8	1168490019	08/24/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-SB-03-5.5-6.0	1168490020	08/24/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-SB-20-5.5-6.0	1168490021	08/24/2016	08/27/2016	Soil/Solid (dry weight)
Trip Blank-01	1168490022	08/23/2016	08/27/2016	Soil/Solid (dry weight)
16-TAL-WP-01-21.5-25.0	1168490023	08/25/2016	08/27/2016	Water (Surface, Eff., Ground)
16-TAL-WP-02-21.5-25.0	1168490024	08/25/2016	08/27/2016	Water (Surface, Eff., Ground)
16-TAL-WP-20-21.5-25.0	1168490025	08/25/2016	08/27/2016	Water (Surface, Eff., Ground)
16-TAL-WP-03-21.5-25.0	1168490026	08/25/2016	08/27/2016	Water (Surface, Eff., Ground)
Trip Blank-02	1168490027	08/25/2016	08/27/2016	Water (Surface, Eff., Ground)

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
Method	**Method Description**			
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV			
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS			
AK101	AK101/8021 Combo.			
SW8021B	AK101/8021 Combo.			
SW8021B	BTEX 8021 prepped by AK101 Field Prep			
AK102	Diesel/Residual Range Organics			
AK103	Diesel/Residual Range Organics			
AK102	DRO/RRO Low Volume Water			
AK103	DRO/RRO Low Volume Water			
SW6020A	Metals by ICP-MS (S)			
SM21 2540G	Percent Solids SM2540G			
SW8082A	SW8082 PCB's			

Detectable Results Summary

Client Sample ID: **16-TAL-TP-01-1.0-1.3**
Lab Sample ID: 1168490001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	99500	mg/Kg
	Residual Range Organics	83100	mg/Kg

Client Sample ID: **16-TAL-TP-01-2.4-2.5**
Lab Sample ID: 1168490002

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	11.1J	mg/Kg

Client Sample ID: **16-TAL-TP-01-2.5-2.6**
Lab Sample ID: 1168490003

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	14.3J	mg/Kg

Client Sample ID: **16-TAL-TP-02-1.1-1.3**
Lab Sample ID: 1168490004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	35700	mg/Kg
	Residual Range Organics	45200	mg/Kg

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Lab Sample ID: 1168490005

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	10.1	mg/Kg
	Barium	453	mg/Kg
	Cadmium	0.343	mg/Kg
	Chromium	31.8	mg/Kg
	Lead	9.45	mg/Kg
	Mercury	0.0637	mg/Kg
	Selenium	0.595J	mg/Kg
	Silver	0.0929J	mg/Kg
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	2.02J	ug/Kg
	Acenaphthylene	3.37J	ug/Kg
	Benzo(a)Anthracene	7.13	ug/Kg
	Benzo[a]pyrene	14.3	ug/Kg
	Benzo[b]Fluoranthene	12.8	ug/Kg
	Benzo[g,h,i]perylene	6.97	ug/Kg
	Benzo[k]fluoranthene	3.28J	ug/Kg
	Chrysene	7.75	ug/Kg
	Dibenzo[a,h]anthracene	2.13J	ug/Kg
	Fluoranthene	6.68	ug/Kg
	Indeno[1,2,3-c,d] pyrene	4.55J	ug/Kg
	Pyrene	23.5	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	189	mg/Kg
	Residual Range Organics	324	mg/Kg
Volatile Fuels	o-Xylene	17.5J	ug/Kg

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Detectable Results Summary

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Lab Sample ID: 1168490006

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	5.02	mg/Kg
	Barium	185	mg/Kg
	Cadmium	0.213	mg/Kg
	Chromium	23.3	mg/Kg
	Lead	8.51	mg/Kg
	Mercury	0.0316J	mg/Kg
	Selenium	0.387J	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	13800	ug/Kg
	Acenaphthene	33400	ug/Kg
	Anthracene	11600	ug/Kg
	Benzo(a)Anthracene	7660	ug/Kg
	Benzo[a]pyrene	4200	ug/Kg
	Benzo[b]Fluoranthene	3250	ug/Kg
	Benzo[g,h,i]perylene	1660J	ug/Kg
	Benzo[k]fluoranthene	2620	ug/Kg
	Chrysene	19600	ug/Kg
	Fluorene	21800	ug/Kg
	Naphthalene	2300J	ug/Kg
	Phenanthrene	33700	ug/Kg
	Pyrene	30100	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	66900	mg/Kg
	Residual Range Organics	67400	mg/Kg
Volatile Fuels	o-Xylene	110	ug/Kg

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Detectable Results Summary

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Lab Sample ID: 1168490007

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	4.67	mg/Kg
	Barium	191	mg/Kg
	Cadmium	0.175J	mg/Kg
	Chromium	23.2	mg/Kg
	Lead	8.20	mg/Kg
	Mercury	0.0294J	mg/Kg
	Selenium	0.393J	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	17900	ug/Kg
	Acenaphthene	37400	ug/Kg
	Anthracene	14200	ug/Kg
	Benzo(a)Anthracene	8250	ug/Kg
	Benzo[a]pyrene	4130	ug/Kg
	Benzo[b]Fluoranthene	2990	ug/Kg
	Benzo[g,h,i]perylene	1500J	ug/Kg
	Chrysene	20000	ug/Kg
	Fluoranthene	5950	ug/Kg
	Fluorene	25600	ug/Kg
	Phenanthrene	34200	ug/Kg
	Pyrene	31100	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	71000	mg/Kg
	Residual Range Organics	70700	mg/Kg
Volatile Fuels	o-Xylene	142	ug/Kg

Client Sample ID: **16-TAL-TP-03-2.8-3.0**
Lab Sample ID: 1168490008

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	16.8J	mg/Kg

Client Sample ID: **16-TAL-TP-04-1.0-1.2**
Lab Sample ID: 1168490009

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	20.2J	mg/Kg

Client Sample ID: **16-TAL-TP-05-1.0-1.2**
Lab Sample ID: 1168490010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	10.3J	mg/Kg
	Residual Range Organics	48.3	mg/Kg

Client Sample ID: **16-TAL-TP-06-1.3-1.5**
Lab Sample ID: 1168490011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	8.82J	mg/Kg
	Residual Range Organics	44.2	mg/Kg

Client Sample ID: **16-TAL-TP-07-1.4-1.5**
Lab Sample ID: 1168490012

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	52.5	mg/Kg
	Residual Range Organics	333	mg/Kg

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Detectable Results Summary

Client Sample ID: **16-TAL-TP-08-1.2-1.3**
Lab Sample ID: 1168490013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	4210	mg/Kg
	Residual Range Organics	18000	mg/Kg

Client Sample ID: **16-TAL-TP-09-2.1-2.3**
Lab Sample ID: 1168490014

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	112	mg/Kg
	Residual Range Organics	721	mg/Kg

Client Sample ID: **16-TAL-TP-10-1.0-1.2**
Lab Sample ID: 1168490015

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	67.0	mg/Kg
	Residual Range Organics	399	mg/Kg

Client Sample ID: **16-TAL-TP-11-1.5-1.7**
Lab Sample ID: 1168490016

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	24.9J	mg/Kg
	Residual Range Organics	150	mg/Kg

Client Sample ID: **16-TAL-SB-01-18.3-18.7**
Lab Sample ID: 1168490017

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	7.63J	mg/Kg
	Residual Range Organics	19.6J	mg/Kg

Client Sample ID: **16-TAL-SB-02-19.0-19.6**
Lab Sample ID: 1168490018

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	7.87J	mg/Kg
	Residual Range Organics	20.0J	mg/Kg

Client Sample ID: **16-TAL-SB-03-1.6-1.8**
Lab Sample ID: 1168490019

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	12400	mg/Kg
	Residual Range Organics	31400	mg/Kg

Client Sample ID: **16-TAL-SB-03-5.5-6.0**
Lab Sample ID: 1168490020

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	8.25J	mg/Kg
	Residual Range Organics	27.5	mg/Kg

Client Sample ID: **16-TAL-SB-20-5.5-6.0**
Lab Sample ID: 1168490021

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	21.1J	mg/Kg

Client Sample ID: **16-TAL-WP-01-21.5-25.0**
Lab Sample ID: 1168490023

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	0.0178J	ug/L
	Phenanthrene	0.0177J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.353J	mg/L
Volatile Fuels	Gasoline Range Organics	0.0338J	mg/L

Detectable Results Summary

Client Sample ID: **16-TAL-WP-02-21.5-25.0**
Lab Sample ID: 1168490024

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0154J	ug/L
	Phenanthrene	0.0180J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.324J	mg/L

Client Sample ID: **16-TAL-WP-20-21.5-25.0**
Lab Sample ID: 1168490025

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.190J	mg/L

Client Sample ID: **16-TAL-WP-03-21.5-25.0**
Lab Sample ID: 1168490026

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	0.0225J	ug/L

Client Sample ID: **Trip Blank-02**
Lab Sample ID: 1168490027

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	0.0337J	mg/L

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Results of **16-TAL-TP-01-1.0-1.3**

Client Sample ID: **16-TAL-TP-01-1.0-1.3**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490001
Lab Project ID: 1168490

Collection Date: 08/23/16 13:00
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):87.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	99500		13600	4230	mg/Kg	20		09/10/16 06:37
Surrogates								
5a Androstane (surr)	0	*	50-150		%	20		09/10/16 06:37

Batch Information

Analytical Batch: XFC12811
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/10/16 06:37
Container ID: 1168490001-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.016 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	83100		2730	845	mg/Kg	4		09/08/16 11:18
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/08/16 11:18

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 11:18
Container ID: 1168490001-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.016 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-01-2.4-2.5**

Client Sample ID: **16-TAL-TP-01-2.4-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490002
Lab Project ID: 1168490

Collection Date: 08/23/16 13:05
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	12.2	U	24.3	7.52	mg/Kg	1		09/06/16 21:52
Surrogates								
5a Androstane (surr)	88.5		50-150		%	1		09/06/16 21:52

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 21:52
Container ID: 1168490002-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.249 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	11.1	J	24.3	7.52	mg/Kg	1		09/06/16 21:52
Surrogates								
n-Triacontane-d62 (surr)	97.2		50-150		%	1		09/06/16 21:52

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 21:52
Container ID: 1168490002-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.249 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-01-2.5-2.6**

Client Sample ID: **16-TAL-TP-01-2.5-2.6**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490003
Lab Project ID: 1168490

Collection Date: 08/23/16 13:10
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):80.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	12.4	U	24.7	7.64	mg/Kg	1		09/06/16 22:03
Surrogates								
5a Androstane (surr)	86.6		50-150		%	1		09/06/16 22:03

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:03
Container ID: 1168490003-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.192 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	14.3	J	24.7	7.64	mg/Kg	1		09/06/16 22:03
Surrogates								
n-Triacontane-d62 (surr)	95		50-150		%	1		09/06/16 22:03

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:03
Container ID: 1168490003-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.192 g
Prep Extract Vol: 1 mL

Results of **16-TAL-TP-02-1.1-1.3**

Client Sample ID: **16-TAL-TP-02-1.1-1.3**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490004
Lab Project ID: 1168490

Collection Date: 08/23/16 13:15
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):89.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	35700		2620	813	mg/Kg	4		09/08/16 11:28
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/08/16 11:28

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/08/16 11:28
Container ID: 1168490004-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.127 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	45200		2620	813	mg/Kg	4		09/08/16 11:28
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/08/16 11:28

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 11:28
Container ID: 1168490004-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.127 g
Prep Extract Vol: 5 mL

Results of **16-TAL-TP-02-2.2-2.5**

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490005
Lab Project ID: 1168490

Collection Date: 08/23/16 13:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	10.1		1.14	0.354	mg/Kg	10		09/09/16 13:12
Barium	453		0.857	0.268	mg/Kg	25		09/09/16 13:01
Cadmium	0.343		0.228	0.0708	mg/Kg	10		09/09/16 13:12
Chromium	31.8		0.457	0.148	mg/Kg	10		09/09/16 13:12
Lead	9.45		0.228	0.0708	mg/Kg	10		09/09/16 13:12
Mercury	0.0637		0.0457	0.0137	mg/Kg	10		09/09/16 13:12
Selenium	0.595	J	1.14	0.354	mg/Kg	10		09/09/16 13:12
Silver	0.0929	J	0.228	0.0708	mg/Kg	10		09/09/16 13:12

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 09/09/16 13:12
Container ID: 1168490005-A

Prep Batch: MXX30150
Prep Method: SW3050B
Prep Date/Time: 09/02/16 08:40
Prep Initial Wt./Vol.: 1.078 g
Prep Extract Vol: 50 mL

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Results of **16-TAL-TP-02-2.2-2.5**

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490005
Lab Project ID: 1168490

Collection Date: 08/23/16 13:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Aroclor-1221	122	U	243	75.5	ug/Kg	1		09/10/16 16:23
Aroclor-1232	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Aroclor-1242	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Aroclor-1248	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Aroclor-1254	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Aroclor-1260	30.4	U	60.9	18.3	ug/Kg	1		09/10/16 16:23
Surrogates								
Decachlorobiphenyl (surr)	88		60-125		%	1		09/10/16 16:23

Batch Information

Analytical Batch: XGC9508
Analytical Method: SW8082A
Analyst: AEE
Analytical Date/Time: 09/10/16 16:23
Container ID: 1168490005-A

Prep Batch: XXX36216
Prep Method: SW3550C
Prep Date/Time: 09/06/16 08:28
Prep Initial Wt./Vol.: 22.753 g
Prep Extract Vol: 5 mL

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Results of **16-TAL-TP-02-2.2-2.5**

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490005
Lab Project ID: 1168490

Collection Date: 08/23/16 13:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
2-Methylnaphthalene	2.02	J	6.11	1.83	ug/Kg	1		09/29/16 07:52
Acenaphthene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
Acenaphthylene	3.37	J	6.11	1.83	ug/Kg	1		09/29/16 07:52
Anthracene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
Benzo(a)Anthracene	7.13		6.11	1.83	ug/Kg	1		09/29/16 07:52
Benzo[a]pyrene	14.3		6.11	1.83	ug/Kg	1		09/29/16 07:52
Benzo[b]Fluoranthene	12.8		6.11	1.83	ug/Kg	1		09/29/16 07:52
Benzo[g,h,i]perylene	6.97		6.11	1.83	ug/Kg	1		09/29/16 07:52
Benzo[k]fluoranthene	3.28	J	6.11	1.83	ug/Kg	1		09/29/16 07:52
Chrysene	7.75		6.11	1.83	ug/Kg	1		09/29/16 07:52
Dibenzo[a,h]anthracene	2.13	J	6.11	1.83	ug/Kg	1		09/29/16 07:52
Fluoranthene	6.68		6.11	1.83	ug/Kg	1		09/29/16 07:52
Fluorene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
Indeno[1,2,3-c,d] pyrene	4.55	J	6.11	1.83	ug/Kg	1		09/29/16 07:52
Naphthalene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
Phenanthrene	3.06	U	6.11	1.83	ug/Kg	1		09/29/16 07:52
Pyrene	23.5		6.11	1.83	ug/Kg	1		09/29/16 07:52
Surrogates								
2-Fluorobiphenyl (surr)	78.5		46-115		%	1		09/29/16 07:52
Terphenyl-d14 (surr)	94.1		58-133		%	1		09/29/16 07:52

Batch Information

Analytical Batch: XMS9647
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 09/29/16 07:52
Container ID: 1168490005-A

Prep Batch: XXX36210
Prep Method: SW3550C
Prep Date/Time: 09/02/16 17:13
Prep Initial Wt./Vol.: 22.681 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-02-2.2-2.5**

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490005
Lab Project ID: 1168490

Collection Date: 08/23/16 13:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	189		24.3	7.52	mg/Kg	1		09/06/16 22:13
Surrogates								
5a Androstane (surr)	91.5		50-150		%	1		09/06/16 22:13

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:13
Container ID: 1168490005-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.46 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	324		24.3	7.52	mg/Kg	1		09/06/16 22:13
Surrogates								
n-Triacontane-d62 (surr)	90.3		50-150		%	1		09/06/16 22:13

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:13
Container ID: 1168490005-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.46 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-02-2.2-2.5**

Client Sample ID: **16-TAL-TP-02-2.2-2.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490005
Lab Project ID: 1168490

Collection Date: 08/23/16 13:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	10.9	U	21.9	7.01	ug/Kg	1		09/01/16 21:04
Ethylbenzene	21.9	U	43.8	13.7	ug/Kg	1		09/01/16 21:04
o-Xylene	17.5	J	43.8	13.7	ug/Kg	1		09/01/16 21:04
P & M -Xylene	43.8	U	87.6	26.3	ug/Kg	1		09/01/16 21:04
Toluene	21.9	U	43.8	13.7	ug/Kg	1		09/01/16 21:04
Surrogates								
1,4-Difluorobenzene (surr)	95.2		72-119		%	1		09/01/16 21:04

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/01/16 21:04
Container ID: 1168490005-B

Prep Batch: VXX29476
Prep Method: SW5035A
Prep Date/Time: 08/23/16 13:20
Prep Initial Wt./Vol.: 47.76 g
Prep Extract Vol: 33.9678 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-03-1.5-1.8**

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490006
Lab Project ID: 1168490

Collection Date: 08/23/16 13:25
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.5
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	5.02		1.02	0.316	mg/Kg	10		09/09/16 16:45
Barium	185		0.305	0.0957	mg/Kg	10		09/09/16 16:45
Cadmium	0.213		0.204	0.0631	mg/Kg	10		09/09/16 16:45
Chromium	23.3		0.407	0.132	mg/Kg	10		09/09/16 16:45
Lead	8.51		0.204	0.0631	mg/Kg	10		09/09/16 16:45
Mercury	0.0316	J	0.0407	0.0122	mg/Kg	10		09/09/16 16:45
Selenium	0.387	J	1.02	0.316	mg/Kg	10		09/09/16 16:45
Silver	0.102	U	0.204	0.0631	mg/Kg	10		09/09/16 16:45

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 09/09/16 16:45
Container ID: 1168490006-A

Prep Batch: MXX30150
Prep Method: SW3050B
Prep Date/Time: 09/02/16 08:40
Prep Initial Wt./Vol.: 1.062 g
Prep Extract Vol: 50 mL

Results of **16-TAL-TP-03-1.5-1.8**

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490006
Lab Project ID: 1168490

Collection Date: 08/23/16 13:25
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.5
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Aroclor-1221	482	U	963	299	ug/Kg	1		09/10/16 16:44
Aroclor-1232	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Aroclor-1242	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Aroclor-1248	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Aroclor-1254	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Aroclor-1260	121	U	241	72.2	ug/Kg	1		09/10/16 16:44
Surrogates								
Decachlorobiphenyl (surr)	82		60-125		%	1		09/10/16 16:44

Batch Information

Analytical Batch: XGC9508
Analytical Method: SW8082A
Analyst: AEE
Analytical Date/Time: 09/10/16 16:44
Container ID: 1168490006-A

Prep Batch: XXX36216
Prep Method: SW3550C
Prep Date/Time: 09/06/16 08:28
Prep Initial Wt./Vol.: 5.052 g
Prep Extract Vol: 5 mL

Results of **16-TAL-TP-03-1.5-1.8**

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490006
Lab Project ID: 1168490

Collection Date: 08/23/16 13:25
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13800		2430	728	ug/Kg	20		09/29/16 08:13
2-Methylnaphthalene	1215	U	2430	728	ug/Kg	20		09/29/16 08:13
Acenaphthene	33400		2430	728	ug/Kg	20		09/29/16 08:13
Acenaphthylene	1215	U	2430	728	ug/Kg	20		09/29/16 08:13
Anthracene	11600		2430	728	ug/Kg	20		09/29/16 08:13
Benzo(a)Anthracene	7660		2430	728	ug/Kg	20		09/29/16 08:13
Benzo[a]pyrene	4200		2430	728	ug/Kg	20		09/29/16 08:13
Benzo[b]Fluoranthene	3250		2430	728	ug/Kg	20		09/29/16 08:13
Benzo[g,h,i]perylene	1660	J	2430	728	ug/Kg	20		09/29/16 08:13
Benzo[k]fluoranthene	2620		2430	728	ug/Kg	20		09/29/16 08:13
Chrysene	19600		2430	728	ug/Kg	20		09/29/16 08:13
Dibenzo[a,h]anthracene	1215	U	2430	728	ug/Kg	20		09/29/16 08:13
Fluoranthene	1215	U	2430	728	ug/Kg	20		09/29/16 08:13
Fluorene	21800		2430	728	ug/Kg	20		09/29/16 08:13
Indeno[1,2,3-c,d] pyrene	1215	U	2430	728	ug/Kg	20		09/29/16 08:13
Naphthalene	2300	J	2430	728	ug/Kg	20		09/29/16 08:13
Phenanthrene	33700		2430	728	ug/Kg	20		09/29/16 08:13
Pyrene	30100		2430	728	ug/Kg	20		09/29/16 08:13
Surrogates								
2-Fluorobiphenyl (surr)	281	*	46-115		%	20		09/29/16 08:13
Terphenyl-d14 (surr)	312	*	58-133		%	20		09/29/16 08:13

Batch Information

Analytical Batch: XMS9647
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 09/29/16 08:13
Container ID: 1168490006-A

Prep Batch: XXX36210
Prep Method: SW3550C
Prep Date/Time: 09/02/16 17:13
Prep Initial Wt./Vol.: 5.01 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-03-1.5-1.8**

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490006
Lab Project ID: 1168490

Collection Date: 08/23/16 13:25
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	66900		2560	793	mg/Kg	4		09/08/16 11:39
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/08/16 11:39

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/08/16 11:39
Container ID: 1168490006-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.072 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	67400		2560	793	mg/Kg	4		09/08/16 11:39
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/08/16 11:39

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 11:39
Container ID: 1168490006-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.072 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-03-1.5-1.8**

Client Sample ID: **16-TAL-TP-03-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490006
Lab Project ID: 1168490

Collection Date: 08/23/16 13:25
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.15	U	18.3	5.85	ug/Kg	1		09/01/16 20:45
Ethylbenzene	18.3	U	36.6	11.4	ug/Kg	1		09/01/16 20:45
o-Xylene	110		36.6	11.4	ug/Kg	1		09/01/16 20:45
P & M -Xylene	36.5	U	73.1	21.9	ug/Kg	1		09/01/16 20:45
Toluene	18.3	U	36.6	11.4	ug/Kg	1		09/01/16 20:45
Surrogates								
1,4-Difluorobenzene (surr)	95.1		72-119		%	1		09/01/16 20:45

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/01/16 20:45
Container ID: 1168490006-B

Prep Batch: VXX29476
Prep Method: SW5035A
Prep Date/Time: 08/23/16 13:25
Prep Initial Wt./Vol.: 41.562 g
Prep Extract Vol: 28.1151 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-20-1.5-1.8**

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490007
Lab Project ID: 1168490

Collection Date: 08/23/16 13:30
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):91.8
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	4.67		1.04	0.323	mg/Kg	10		09/09/16 15:55
Barium	191		0.312	0.0979	mg/Kg	10		09/09/16 15:55
Cadmium	0.175	J	0.208	0.0646	mg/Kg	10		09/09/16 15:55
Chromium	23.2		0.417	0.135	mg/Kg	10		09/09/16 15:55
Lead	8.20		0.208	0.0646	mg/Kg	10		09/09/16 15:55
Mercury	0.0294	J	0.0417	0.0125	mg/Kg	10		09/09/16 15:55
Selenium	0.393	J	1.04	0.323	mg/Kg	10		09/09/16 15:55
Silver	0.104	U	0.208	0.0646	mg/Kg	10		09/09/16 15:55

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 09/09/16 15:55
Container ID: 1168490007-A

Prep Batch: MXX30152
Prep Method: SW3050B
Prep Date/Time: 09/02/16 09:30
Prep Initial Wt./Vol.: 1.046 g
Prep Extract Vol: 50 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-20-1.5-1.8**

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490007
Lab Project ID: 1168490

Collection Date: 08/23/16 13:30
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):91.8
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Aroclor-1221	486	U	972	301	ug/Kg	1		09/10/16 17:04
Aroclor-1232	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Aroclor-1242	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Aroclor-1248	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Aroclor-1254	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Aroclor-1260	122	U	243	72.9	ug/Kg	1		09/10/16 17:04
Surrogates								
Decachlorobiphenyl (surr)	75		60-125		%	1		09/10/16 17:04

Batch Information

Analytical Batch: XGC9508
Analytical Method: SW8082A
Analyst: AEE
Analytical Date/Time: 09/10/16 17:04
Container ID: 1168490007-A

Prep Batch: XXX36216
Prep Method: SW3550C
Prep Date/Time: 09/06/16 08:28
Prep Initial Wt./Vol.: 5.042 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-20-1.5-1.8**

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490007
Lab Project ID: 1168490

Collection Date: 08/23/16 13:30
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):91.8
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	17900		2450	735	ug/Kg	20		09/29/16 08:34
2-Methylnaphthalene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Acenaphthene	37400		2450	735	ug/Kg	20		09/29/16 08:34
Acenaphthylene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Anthracene	14200		2450	735	ug/Kg	20		09/29/16 08:34
Benzo(a)Anthracene	8250		2450	735	ug/Kg	20		09/29/16 08:34
Benzo[a]pyrene	4130		2450	735	ug/Kg	20		09/29/16 08:34
Benzo[b]Fluoranthene	2990		2450	735	ug/Kg	20		09/29/16 08:34
Benzo[g,h,i]perylene	1500	J	2450	735	ug/Kg	20		09/29/16 08:34
Benzo[k]fluoranthene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Chrysene	20000		2450	735	ug/Kg	20		09/29/16 08:34
Dibenzo[a,h]anthracene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Fluoranthene	5950		2450	735	ug/Kg	20		09/29/16 08:34
Fluorene	25600		2450	735	ug/Kg	20		09/29/16 08:34
Indeno[1,2,3-c,d] pyrene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Naphthalene	1225	U	2450	735	ug/Kg	20		09/29/16 08:34
Phenanthrene	34200		2450	735	ug/Kg	20		09/29/16 08:34
Pyrene	31100		2450	735	ug/Kg	20		09/29/16 08:34
Surrogates								
2-Fluorobiphenyl (surr)	309	*	46-115		%	20		09/29/16 08:34
Terphenyl-d14 (surr)	104		58-133		%	20		09/29/16 08:34

Batch Information

Analytical Batch: XMS9647
Analytical Method: 8270D SIM (PAH)
Analyst: S.G
Analytical Date/Time: 09/29/16 08:34
Container ID: 1168490007-A

Prep Batch: XXX36210
Prep Method: SW3550C
Prep Date/Time: 09/02/16 17:13
Prep Initial Wt./Vol.: 5.005 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-20-1.5-1.8**

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490007
Lab Project ID: 1168490

Collection Date: 08/23/16 13:30
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):91.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	71000		2580	799	mg/Kg	4		09/08/16 11:49
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/08/16 11:49

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/08/16 11:49
Container ID: 1168490007-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.07 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	70700		2580	799	mg/Kg	4		09/08/16 11:49
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/08/16 11:49

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 11:49
Container ID: 1168490007-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.07 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-20-1.5-1.8**

Client Sample ID: **16-TAL-TP-20-1.5-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490007
Lab Project ID: 1168490

Collection Date: 08/23/16 13:30
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):91.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.80	U	19.6	6.27	ug/Kg	1		09/01/16 20:27
Ethylbenzene	19.6	U	39.2	12.2	ug/Kg	1		09/01/16 20:27
o-Xylene	142		39.2	12.2	ug/Kg	1		09/01/16 20:27
P & M -Xylene	39.1	U	78.3	23.5	ug/Kg	1		09/01/16 20:27
Toluene	19.6	U	39.2	12.2	ug/Kg	1		09/01/16 20:27
Surrogates								
1,4-Difluorobenzene (surr)	96.3		72-119		%	1		09/01/16 20:27

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/01/16 20:27
Container ID: 1168490007-B

Prep Batch: VXX29476
Prep Method: SW5035A
Prep Date/Time: 08/23/16 13:30
Prep Initial Wt./Vol.: 39.247 g
Prep Extract Vol: 28.2196 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-03-2.8-3.0**

Client Sample ID: **16-TAL-TP-03-2.8-3.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490008
Lab Project ID: 1168490

Collection Date: 08/23/16 13:35
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):84.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.8	U	23.5	7.29	mg/Kg	1		09/06/16 22:24
Surrogates								
5a Androstane (surr)	89.9		50-150		%	1		09/06/16 22:24

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:24
Container ID: 1168490008-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.205 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	16.8	J	23.5	7.29	mg/Kg	1		09/06/16 22:24
Surrogates								
n-Triacontane-d62 (surr)	100		50-150		%	1		09/06/16 22:24

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:24
Container ID: 1168490008-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.205 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-04-1.0-1.2**

Client Sample ID: **16-TAL-TP-04-1.0-1.2**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490009
Lab Project ID: 1168490

Collection Date: 08/23/16 13:40
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):87.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.3	U	22.6	7.01	mg/Kg	1		09/06/16 22:34
Surrogates								
5a Androstane (surr)	89.8		50-150		%	1		09/06/16 22:34

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:34
Container ID: 1168490009-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.337 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	20.2	J	22.6	7.01	mg/Kg	1		09/06/16 22:34
Surrogates								
n-Triacontane-d62 (surr)	103		50-150		%	1		09/06/16 22:34

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:34
Container ID: 1168490009-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.337 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-05-1.0-1.2**

Client Sample ID: **16-TAL-TP-05-1.0-1.2**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490010
Lab Project ID: 1168490

Collection Date: 08/23/16 13:45
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):78.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.3	J	25.3	7.83	mg/Kg	1		09/06/16 22:45
Surrogates								
5a Androstane (surr)	90.4		50-150		%	1		09/06/16 22:45

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:45
Container ID: 1168490010-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.323 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	48.3		25.3	7.83	mg/Kg	1		09/06/16 22:45
Surrogates								
n-Triacontane-d62 (surr)	135		50-150		%	1		09/06/16 22:45

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:45
Container ID: 1168490010-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.323 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-06-1.3-1.5**

Client Sample ID: **16-TAL-TP-06-1.3-1.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490011
Lab Project ID: 1168490

Collection Date: 08/23/16 13:50
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.82	J	24.3	7.53	mg/Kg	1		09/06/16 22:55
Surrogates								
5a Androstane (surr)	89.4		50-150		%	1		09/06/16 22:55

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 22:55
Container ID: 1168490011-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.437 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	44.2		24.3	7.53	mg/Kg	1		09/06/16 22:55
Surrogates								
n-Triacontane-d62 (surr)	124		50-150		%	1		09/06/16 22:55

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 22:55
Container ID: 1168490011-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.437 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-07-1.4-1.5**

Client Sample ID: **16-TAL-TP-07-1.4-1.5**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490012
Lab Project ID: 1168490

Collection Date: 08/23/16 13:55
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):75.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	52.5		26.2	8.12	mg/Kg	1		09/06/16 23:06
Surrogates								
5a Androstane (surr)	99.2		50-150		%	1		09/06/16 23:06

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:06
Container ID: 1168490012-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.498 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	333		26.2	8.12	mg/Kg	1		09/06/16 23:06
Surrogates								
n-Triacontane-d62 (surr)	110		50-150		%	1		09/06/16 23:06

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:06
Container ID: 1168490012-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.498 g
Prep Extract Vol: 1 mL

Results of **16-TAL-TP-08-1.2-1.3**

Client Sample ID: **16-TAL-TP-08-1.2-1.3**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490013
Lab Project ID: 1168490

Collection Date: 08/23/16 14:00
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	4210		816	253	mg/Kg	1		09/08/16 12:00
Surrogates								
5a Androstane (surr)	108		50-150		%	1		09/08/16 12:00

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/08/16 12:00
Container ID: 1168490013-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.089 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	18000		816	253	mg/Kg	1		09/08/16 12:00
Surrogates								
n-Triacontane-d62 (surr)	74.9		50-150		%	1		09/08/16 12:00

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 12:00
Container ID: 1168490013-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.089 g
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-TP-09-2.1-2.3**

Client Sample ID: **16-TAL-TP-09-2.1-2.3**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490014
Lab Project ID: 1168490

Collection Date: 08/23/16 14:05
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):71.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	112		27.7	8.58	mg/Kg	1		09/06/16 23:16
Surrogates								
5a Androstane (surr)	117		50-150		%	1		09/06/16 23:16

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:16
Container ID: 1168490014-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.355 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	721		27.7	8.58	mg/Kg	1		09/06/16 23:16
Surrogates								
n-Triacontane-d62 (surr)	127		50-150		%	1		09/06/16 23:16

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:16
Container ID: 1168490014-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.355 g
Prep Extract Vol: 1 mL

Results of **16-TAL-TP-10-1.0-1.2**

Client Sample ID: **16-TAL-TP-10-1.0-1.2**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490015
Lab Project ID: 1168490

Collection Date: 08/23/16 14:10
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):72.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	67.0		27.3	8.45	mg/Kg	1		09/06/16 23:26
Surrogates								
5a Androstane (surr)	102		50-150		%	1		09/06/16 23:26

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:26
Container ID: 1168490015-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.345 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	399		27.3	8.45	mg/Kg	1		09/06/16 23:26
Surrogates								
n-Triacontane-d62 (surr)	119		50-150		%	1		09/06/16 23:26

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:26
Container ID: 1168490015-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.345 g
Prep Extract Vol: 1 mL

Results of **16-TAL-TP-11-1.5-1.7**

Client Sample ID: **16-TAL-TP-11-1.5-1.7**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490016
Lab Project ID: 1168490

Collection Date: 08/23/16 14:15
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	24.9	J	25.3	7.85	mg/Kg	1		09/06/16 23:36
Surrogates								
5a Androstane (surr)	93.1		50-150		%	1		09/06/16 23:36

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:36
Container ID: 1168490016-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.348 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	150		25.3	7.85	mg/Kg	1		09/06/16 23:36
Surrogates								
n-Triacontane-d62 (surr)	115		50-150		%	1		09/06/16 23:36

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:36
Container ID: 1168490016-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.348 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-SB-01-18.3-18.7**

Client Sample ID: **16-TAL-SB-01-18.3-18.7**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490017
Lab Project ID: 1168490

Collection Date: 08/24/16 16:40
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	7.63	J	21.4	6.64	mg/Kg	1		09/06/16 23:47
Surrogates								
5a Androstane (surr)	90.3		50-150		%	1		09/06/16 23:47

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:47
Container ID: 1168490017-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.231 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	19.6	J	21.4	6.64	mg/Kg	1		09/06/16 23:47
Surrogates								
n-Triacontane-d62 (surr)	98.9		50-150		%	1		09/06/16 23:47

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:47
Container ID: 1168490017-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.231 g
Prep Extract Vol: 1 mL

Results of **16-TAL-SB-02-19.0-19.6**

Client Sample ID: **16-TAL-SB-02-19.0-19.6**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490018
Lab Project ID: 1168490

Collection Date: 08/24/16 17:35
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	7.87	J	23.1	7.16	mg/Kg	1		09/06/16 23:57
Surrogates								
5a Androstane (surr)	88.4		50-150		%	1		09/06/16 23:57

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/06/16 23:57
Container ID: 1168490018-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.207 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	20.0	J	23.1	7.16	mg/Kg	1		09/06/16 23:57
Surrogates								
n-Triacontane-d62 (surr)	98.1		50-150		%	1		09/06/16 23:57

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/06/16 23:57
Container ID: 1168490018-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.207 g
Prep Extract Vol: 1 mL

Results of **16-TAL-SB-03-1.6-1.8**

Client Sample ID: **16-TAL-SB-03-1.6-1.8**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490019
Lab Project ID: 1168490

Collection Date: 08/24/16 18:00
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	12400		2850	884	mg/Kg	4		09/08/16 12:10
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/08/16 12:10

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/08/16 12:10
Container ID: 1168490019-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.027 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	31400		2850	884	mg/Kg	4		09/08/16 12:10
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/08/16 12:10

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/08/16 12:10
Container ID: 1168490019-A

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 09/02/16 20:32
Prep Initial Wt./Vol.: 5.027 g
Prep Extract Vol: 5 mL

Results of **16-TAL-SB-03-5.5-6.0**

Client Sample ID: **16-TAL-SB-03-5.5-6.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490020
Lab Project ID: 1168490

Collection Date: 08/24/16 18:10
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):81.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.25	J	24.4	7.57	mg/Kg	1		09/07/16 00:08
Surrogates								
5a Androstane (surr)	85.7		50-150		%	1		09/07/16 00:08

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/07/16 00:08
Container ID: 1168490020-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.217 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	27.5		24.4	7.57	mg/Kg	1		09/07/16 00:08
Surrogates								
n-Triacontane-d62 (surr)	98.5		50-150		%	1		09/07/16 00:08

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/07/16 00:08
Container ID: 1168490020-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.217 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-SB-20-5.5-6.0**

Client Sample ID: **16-TAL-SB-20-5.5-6.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490021
Lab Project ID: 1168490

Collection Date: 08/24/16 18:20
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):82.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.9	U	23.9	7.40	mg/Kg	1		09/07/16 00:29
Surrogates								
5a Androstane (surr)	85.3		50-150		%	1		09/07/16 00:29

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/07/16 00:29
Container ID: 1168490021-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.491 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	21.1	J	23.9	7.40	mg/Kg	1		09/07/16 00:29
Surrogates								
n-Triacontane-d62 (surr)	116		50-150		%	1		09/07/16 00:29

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/07/16 00:29
Container ID: 1168490021-A

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 09/02/16 14:12
Prep Initial Wt./Vol.: 30.491 g
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **Trip Blank-01**

Client Sample ID: **Trip Blank-01**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490022
Lab Project ID: 1168490

Collection Date: 08/23/16 08:00
Received Date: 08/27/16 10:30
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.35	U	12.7	4.08	ug/Kg	1		09/01/16 14:14
Ethylbenzene	12.8	U	25.5	7.95	ug/Kg	1		09/01/16 14:14
o-Xylene	12.8	U	25.5	7.95	ug/Kg	1		09/01/16 14:14
P & M -Xylene	25.5	U	51.0	15.3	ug/Kg	1		09/01/16 14:14
Toluene	12.8	U	25.5	7.95	ug/Kg	1		09/01/16 14:14
Surrogates								
1,4-Difluorobenzene (surr)	96.9		72-119		%	1		09/01/16 14:14

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/01/16 14:14
Container ID: 1168490022-A

Prep Batch: VXX29476
Prep Method: SW5035A
Prep Date/Time: 08/23/16 08:00
Prep Initial Wt./Vol.: 49.046 g
Prep Extract Vol: 25 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-WP-01-21.5-25.0**

Client Sample ID: **16-TAL-WP-01-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490023
Lab Project ID: 1168490

Collection Date: 08/25/16 10:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
2-Methylnaphthalene	0.0178	J	0.0508	0.0152	ug/L	1		09/15/16 23:11
Acenaphthene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Acenaphthylene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Anthracene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Benzo(a)Anthracene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Benzo[a]pyrene	0.0101	U	0.0203	0.00630	ug/L	1		09/15/16 23:11
Benzo[b]Fluoranthene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Benzo[g,h,i]perylene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Benzo[k]fluoranthene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Chrysene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Dibenzo[a,h]anthracene	0.0101	U	0.0203	0.00630	ug/L	1		09/15/16 23:11
Fluoranthene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Fluorene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Indeno[1,2,3-c,d] pyrene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Naphthalene	0.0510	U	0.102	0.0315	ug/L	1		09/15/16 23:11
Phenanthrene	0.0177	J	0.0508	0.0152	ug/L	1		09/15/16 23:11
Pyrene	0.0254	U	0.0508	0.0152	ug/L	1		09/15/16 23:11
Surrogates								
2-Fluorobiphenyl (surr)	96		53-106		%	1		09/15/16 23:11
Terphenyl-d14 (surr)	84.7		58-132		%	1		09/15/16 23:11

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Analyst: BRV
Analytical Date/Time: 09/15/16 23:11
Container ID: 1168490023-F

Prep Batch: XXX36180
Prep Method: SW3520C
Prep Date/Time: 08/31/16 09:05
Prep Initial Wt./Vol.: 246 mL
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-WP-01-21.5-25.0**

Client Sample ID: **16-TAL-WP-01-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490023
Lab Project ID: 1168490

Collection Date: 08/25/16 10:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.353	J	0.600	0.180	mg/L	1		09/08/16 04:37
Surrogates								
5a Androstane (surr)	87.7		50-150		%	1		09/08/16 04:37

Batch Information

Analytical Batch: XFC12796
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 09/08/16 04:37
Container ID: 1168490023-A

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 09/07/16 08:55
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.250	U	0.500	0.150	mg/L	1		09/08/16 04:37
Surrogates								
n-Triacontane-d62 (surr)	96.3		50-150		%	1		09/08/16 04:37

Batch Information

Analytical Batch: XFC12796
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 09/08/16 04:37
Container ID: 1168490023-A

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 09/07/16 08:55
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of **16-TAL-WP-01-21.5-25.0**

Client Sample ID: **16-TAL-WP-01-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490023
Lab Project ID: 1168490

Collection Date: 08/25/16 10:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0338	J	0.100	0.0310	mg/L	1		09/06/16 04:15
Surrogates								
4-Bromofluorobenzene (surr)	110		50-150		%	1		09/06/16 04:15

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/06/16 04:15
Container ID: 1168490023-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/06/16 04:15
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/06/16 04:15
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/06/16 04:15
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/06/16 04:15
Toluene	0.500	U	1.00	0.310	ug/L	1		09/06/16 04:15
Surrogates								
1,4-Difluorobenzene (surr)	97.1		77-115		%	1		09/06/16 04:15

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/06/16 04:15
Container ID: 1168490023-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **16-TAL-WP-02-21.5-25.0**

Client Sample ID: **16-TAL-WP-02-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490024
Lab Project ID: 1168490

Collection Date: 08/25/16 11:00
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0154	J	0.0512	0.0154	ug/L	1		09/15/16 23:32
2-Methylnaphthalene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Acenaphthene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Acenaphthylene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Anthracene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Benzo(a)Anthracene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Benzo[a]pyrene	0.0103	U	0.0205	0.00635	ug/L	1		09/15/16 23:32
Benzo[b]Fluoranthene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Benzo[g,h,i]perylene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Benzo[k]fluoranthene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Chrysene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Dibenzo[a,h]anthracene	0.0103	U	0.0205	0.00635	ug/L	1		09/15/16 23:32
Fluoranthene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Fluorene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Indeno[1,2,3-c,d] pyrene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Naphthalene	0.0510	U	0.102	0.0318	ug/L	1		09/15/16 23:32
Phenanthrene	0.0180	J	0.0512	0.0154	ug/L	1		09/15/16 23:32
Pyrene	0.0256	U	0.0512	0.0154	ug/L	1		09/15/16 23:32
Surrogates								
2-Fluorobiphenyl (surr)	89.1		53-106		%	1		09/15/16 23:32
Terphenyl-d14 (surr)	86		58-132		%	1		09/15/16 23:32

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Analyst: BRV
Analytical Date/Time: 09/15/16 23:32
Container ID: 1168490024-F

Prep Batch: XXX36180
Prep Method: SW3520C
Prep Date/Time: 08/31/16 09:05
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Results of **16-TAL-WP-02-21.5-25.0**

Client Sample ID: **16-TAL-WP-02-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490024
Lab Project ID: 1168490

Collection Date: 08/25/16 11:00
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.324	J	0.588	0.176	mg/L	1		09/08/16 04:47
Surrogates								
5a Androstane (surr)	82.8		50-150		%	1		09/08/16 04:47

Batch Information

Analytical Batch: XFC12796
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 09/08/16 04:47
Container ID: 1168490024-A

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 09/07/16 08:55
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.245	U	0.490	0.147	mg/L	1		09/08/16 04:47
Surrogates								
n-Triacontane-d62 (surr)	92.6		50-150		%	1		09/08/16 04:47

Batch Information

Analytical Batch: XFC12796
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 09/08/16 04:47
Container ID: 1168490024-A

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 09/07/16 08:55
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **16-TAL-WP-02-21.5-25.0**

Client Sample ID: **16-TAL-WP-02-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490024
Lab Project ID: 1168490

Collection Date: 08/25/16 11:00
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U		0.100	0.0310	mg/L	1		09/06/16 04:33
Surrogates								
4-Bromofluorobenzene (surr)	110		50-150		%	1		09/06/16 04:33

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/06/16 04:33
Container ID: 1168490024-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250 U		0.500	0.150	ug/L	1		09/06/16 04:33
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:33
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:33
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/06/16 04:33
Toluene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:33
Surrogates								
1,4-Difluorobenzene (surr)	95.4		77-115		%	1		09/06/16 04:33

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/06/16 04:33
Container ID: 1168490024-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-WP-20-21.5-25.0**

Client Sample ID: **16-TAL-WP-20-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490025
Lab Project ID: 1168490

Collection Date: 08/25/16 11:05
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		09/15/16 23:52
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		09/15/16 23:52
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		09/15/16 23:52
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/15/16 23:52
Surrogates								
2-Fluorobiphenyl (surr)	94.2		53-106		%	1		09/15/16 23:52
Terphenyl-d14 (surr)	88.2		58-132		%	1		09/15/16 23:52

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Analyst: BRV
Analytical Date/Time: 09/15/16 23:52
Container ID: 1168490025-F

Prep Batch: XXX36180
Prep Method: SW3520C
Prep Date/Time: 08/31/16 09:05
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-WP-20-21.5-25.0**

Client Sample ID: **16-TAL-WP-20-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490025
Lab Project ID: 1168490

Collection Date: 08/25/16 11:05
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.190	J	0.588	0.176	mg/L	1		09/10/16 04:10
Surrogates								
5a Androstane (surr)	87.4		50-150		%	1		09/10/16 04:10

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/10/16 04:10
Container ID: 1168490025-A

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 09/07/16 10:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.245	U	0.490	0.147	mg/L	1		09/10/16 04:10
Surrogates								
n-Triacontane-d62 (surr)	94.3		50-150		%	1		09/10/16 04:10

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/10/16 04:10
Container ID: 1168490025-A

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 09/07/16 10:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **16-TAL-WP-20-21.5-25.0**

Client Sample ID: **16-TAL-WP-20-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490025
Lab Project ID: 1168490

Collection Date: 08/25/16 11:05
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U		0.100	0.0310	mg/L	1		09/06/16 04:52
Surrogates								
4-Bromofluorobenzene (surr)	110		50-150		%	1		09/06/16 04:52

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/06/16 04:52
Container ID: 1168490025-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250 U		0.500	0.150	ug/L	1		09/06/16 04:52
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:52
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:52
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/06/16 04:52
Toluene	0.500 U		1.00	0.310	ug/L	1		09/06/16 04:52
Surrogates								
1,4-Difluorobenzene (surr)	96.5		77-115		%	1		09/06/16 04:52

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/06/16 04:52
Container ID: 1168490025-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **16-TAL-WP-03-21.5-25.0**

Client Sample ID: **16-TAL-WP-03-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490026
Lab Project ID: 1168490

Collection Date: 08/25/16 12:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
2-Methylnaphthalene	0.0225	J	0.0490	0.0147	ug/L	1		09/16/16 00:13
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		09/16/16 00:13
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		09/16/16 00:13
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		09/16/16 00:13
Phenanthrene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		09/16/16 00:13
Surrogates								
2-Fluorobiphenyl (surr)	83.2		53-106		%	1		09/16/16 00:13
Terphenyl-d14 (surr)	79.9		58-132		%	1		09/16/16 00:13

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Analyst: BRV
Analytical Date/Time: 09/16/16 00:13
Container ID: 1168490026-F

Prep Batch: XXX36180
Prep Method: SW3520C
Prep Date/Time: 08/31/16 09:05
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 10/03/2016 11:29:17AM

J flagging is activated

Results of **16-TAL-WP-03-21.5-25.0**

Client Sample ID: **16-TAL-WP-03-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490026
Lab Project ID: 1168490

Collection Date: 08/25/16 12:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.294	U	0.588	0.176	mg/L	1		09/10/16 04:21
Surrogates								
5a Androstane (surr)	78.3		50-150		%	1		09/10/16 04:21

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 09/10/16 04:21
Container ID: 1168490026-A

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 09/07/16 10:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.245	U	0.490	0.147	mg/L	1		09/10/16 04:21
Surrogates								
n-Triacontane-d62 (surr)	91.7		50-150		%	1		09/10/16 04:21

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 09/10/16 04:21
Container ID: 1168490026-A

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 09/07/16 10:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **16-TAL-WP-03-21.5-25.0**

Client Sample ID: **16-TAL-WP-03-21.5-25.0**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490026
Lab Project ID: 1168490

Collection Date: 08/25/16 12:15
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		09/06/16 05:11
Surrogates								
4-Bromofluorobenzene (surr)	113		50-150		%	1		09/06/16 05:11

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/06/16 05:11
Container ID: 1168490026-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/06/16 05:11
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/06/16 05:11
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/06/16 05:11
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/06/16 05:11
Toluene	0.500	U	1.00	0.310	ug/L	1		09/06/16 05:11
Surrogates								
1,4-Difluorobenzene (surr)	97.5		77-115		%	1		09/06/16 05:11

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/06/16 05:11
Container ID: 1168490026-C

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank-02**

Client Sample ID: **Trip Blank-02**
Client Project ID: **Tanana Community Hall**
Lab Sample ID: 1168490027
Lab Project ID: 1168490

Collection Date: 08/25/16 08:00
Received Date: 08/27/16 10:30
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0337	J	0.100	0.0310	mg/L	1		09/06/16 01:08
Surrogates								
4-Bromofluorobenzene (surr)	114		50-150		%	1		09/06/16 01:08

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/06/16 01:08
Container ID: 1168490027-A

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/06/16 01:08
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/06/16 01:08
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/06/16 01:08
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/06/16 01:08
Toluene	0.500	U	1.00	0.310	ug/L	1		09/06/16 01:08
Surrogates								
1,4-Difluorobenzene (surr)	97.8		77-115		%	1		09/06/16 01:08

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/06/16 01:08
Container ID: 1168490027-A

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 09/05/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1742560 [MXX/30150]
Blank Lab ID: 1349565

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490005, 1168490006

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.168J	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0200U	0.0400	0.0120	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 1:08:16PM

Prep Batch: MXX30150
Prep Method: SW3050B
Prep Date/Time: 9/2/2016 8:40:43AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [MXX30150]
Blank Spike Lab ID: 1349566
Date Analyzed: 09/09/2016 11:39

Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	50	50.4	101	(82-118)
Barium	50	49.9	100	(86-116)
Cadmium	5	5.10	102	(84-116)
Chromium	20	21.1	105	(83-119)
Lead	50	52.7	105	(84-118)
Mercury	0.5	0.527	105	(74-126)
Selenium	50	49.6	99	(80-119)
Silver	5	4.99	100	(83-118)

Batch Information

Analytical Batch: **MMS9529**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXX30150**
Prep Method: **SW3050B**
Prep Date/Time: **09/02/2016 08:40**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1349567
MS Sample ID: 1349568 MS
MSD Sample ID: 1349569 MSD

Analysis Date: 09/09/2016 11:43
Analysis Date: 09/09/2016 11:48
Analysis Date: 09/09/2016 11:52
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1168490005, 1168490006

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	5.34	48.7	55.4	103	48.3	54.2	101	82-118	2.05	(< 20)
Barium	80.0	48.7	152	147 *	48.3	157	160 *	86-116	3.47	(< 20)
Cadmium	0.0791J	4.87	5.05	102	4.83	4.92	100	84-116	2.56	(< 20)
Chromium	13.9	19.5	41.2	140 *	19.3	41.6	143 *	83-119	1.08	(< 20)
Lead	5.32	48.7	55.3	102	48.3	53.9	101	84-118	2.47	(< 20)
Mercury	0.0239J	0.487	.523	103	0.483	0.530	105	74-126	1.31	(< 20)
Selenium	0.489U	48.7	51.5	106	48.3	49.5	102	80-119	3.98	(< 20)
Silver	0.0980U	4.87	4.85	100	4.83	4.69	97	83-118	3.33	(< 20)

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 11:48:21AM

Prep Batch: MXX30150
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/2/2016 8:40:43AM
Prep Initial Wt./Vol.: 1.03g
Prep Extract Vol: 50.00mL

Print Date: 10/03/2016 11:29:25AM

Bench Spike Summary

Original Sample ID: 1349567
MS Sample ID: 1349570 BND
MSD Sample ID:

Analysis Date: 09/09/2016 11:43
Analysis Date: 09/09/2016 11:57
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1168490005, 1168490006

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	80.0	242	322	100				80-120		
Chromium	13.9	121	136	101				80-120		

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 11:57:18AM

Prep Batch: MXX30150
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/2/2016 8:40:43AM
Prep Initial Wt./Vol.: 1.03g
Prep Extract Vol: 50.00mL

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Method Blank

Blank ID: MB for HBN 1742573 [MXX/30152]
Blank Lab ID: 1349614

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490007

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.200U	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0200U	0.0400	0.0120	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 1:35:56PM

Prep Batch: MXX30152
Prep Method: SW3050B
Prep Date/Time: 9/2/2016 9:30:33AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Duplicate Sample Summary

Original Sample ID: 1349616
Duplicate Sample ID: 1349620
QC for Samples:
1168490007

Analysis Date: 09/09/2016 16:40
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Barium	715	509	mg/Kg	33.60*	(< 20)

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer NexIon P5
Analyst: VDL

Prep Batch: MXX30152
Prep Method: SW3050B
Prep Date/Time: 9/2/2016 9:30:33AM

Print Date: 10/03/2016 11:29:26AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [MXX30152]
Blank Spike Lab ID: 1349615
Date Analyzed: 09/09/2016 13:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490007

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	50	50.6	101	(82-118)
Barium	50	50.0	100	(86-116)
Cadmium	5	5.20	104	(84-116)
Chromium	20	20.9	105	(83-119)
Lead	50	52.9	106	(84-118)
Mercury	0.5	0.544	109	(74-126)
Selenium	50	50.8	102	(80-119)
Silver	5	5.22	104	(83-118)

Batch Information

Analytical Batch: **MMS9529**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXX30152**
Prep Method: **SW3050B**
Prep Date/Time: **09/02/2016 09:30**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1349616
MS Sample ID: 1349617 MS
MSD Sample ID: 1349618 MSD

QC for Samples: 1168490007

Analysis Date: 09/09/2016 13:44
Analysis Date: 09/09/2016 13:49
Analysis Date: 09/09/2016 13:53
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	8.60	46.1	56.2	103	45.7	54.1	100	82-118	3.87	(< 20)
Barium	715	46.1	559	-338 *	45.7	773	128 *	86-116	32.20 *	(< 20)
Cadmium	0.0990U	4.61	4.78	104	4.57	4.76	104	84-116	0.33	(< 20)
Chromium	3.37	18.5	22.4	103	18.3	26.9	129 *	83-119	18.10	(< 20)
Lead	7.79	46.1	54.3	101	45.7	56.1	106	84-118	3.16	(< 20)
Mercury	0.0561	0.461	.535	104	0.457	0.533	104	74-126	0.40	(< 20)
Selenium	0.494U	46.1	46.2	100	45.7	46.9	103	80-119	1.55	(< 20)
Silver	0.0990U	4.61	4.76	103	4.57	4.64	102	83-118	2.70	(< 20)

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 1:49:21PM

Prep Batch: MXX30152
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/2/2016 9:30:33AM
Prep Initial Wt./Vol.: 1.08g
Prep Extract Vol: 50.00mL

Print Date: 10/03/2016 11:29:28AM

Bench Spike Summary

Original Sample ID: 1349616
MS Sample ID: 1349619 BND
MSD Sample ID:

QC for Samples: 1168490007

Analysis Date: 09/09/2016 16:22
Analysis Date: 09/09/2016 16:36
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	715	1240	1840	91				80-120		
Chromium	3.37	124	124	98				80-120		

Batch Information

Analytical Batch: MMS9529
Analytical Method: SW6020A
Instrument: Perkin Elmer NexIon P5
Analyst: VDL
Analytical Date/Time: 9/9/2016 4:36:21PM

Prep Batch: MXX30152
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/2/2016 9:30:33AM
Prep Initial Wt./Vol.: 1.01g
Prep Extract Vol: 50.00mL

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Method Blank

Blank ID: MB for HBN 1742568 [SPT/9986]
Blank Lab ID: 1349595

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490001, 1168490002, 1168490003, 1168490004, 1168490005, 1168490006, 1168490007, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490013, 1168490014, 1168490015, 1168490016, 1168490017, 1168490018, 1168490019, 1168490020, 1168490021

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9986
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA
Analytical Date/Time: 9/1/2016 5:46:00PM

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Duplicate Sample Summary

Original Sample ID: 1165062005
Duplicate Sample ID: 1349597
QC for Samples:

Analysis Date: 09/01/2016 17:46
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	85.7	86.4	%	0.83	(< 15)

Batch Information

Analytical Batch: SPT9986
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 10/03/2016 11:29:30AM

Duplicate Sample Summary

Original Sample ID: 1165157006
Duplicate Sample ID: 1349598
QC for Samples:
1168490001

Analysis Date: 09/01/2016 17:46
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	99.9	99.9	%	0.03	(< 15)

Batch Information

Analytical Batch: SPT9986
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 10/03/2016 11:29:30AM

Duplicate Sample Summary

Original Sample ID: 1168490001
Duplicate Sample ID: 1349599

Analysis Date: 09/01/2016 17:46
Matrix: Soil/Solid (dry weight)

QC for Samples:

1168490001, 1168490002, 1168490003, 1168490004, 1168490005, 1168490006, 1168490007, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	87.7	88.8	%	1.20	(< 15)

Batch Information

Analytical Batch: SPT9986
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 10/03/2016 11:29:30AM

Duplicate Sample Summary

Original Sample ID: 1168490012
Duplicate Sample ID: 1349600

Analysis Date: 09/01/2016 17:46
Matrix: Soil/Solid (dry weight)

QC for Samples:

1168490002, 1168490003, 1168490004, 1168490005, 1168490006, 1168490007, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490013, 1168490014, 1168490015, 1168490016, 1168490017,

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	75.1	76.8	%	2.20	(< 15)

Batch Information

Analytical Batch: SPT9986
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 10/03/2016 11:29:30AM

Method Blank

Blank ID: MB for HBN 1742571 [VXX/29476]
Blank Lab ID: 1349607

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490005, 1168490006, 1168490007, 1168490022

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	98.1	72-119		%

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/1/2016 1:56:00PM

Prep Batch: VXX29476
Prep Method: SW5035A
Prep Date/Time: 9/1/2016 12:30:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [VXX29476]
Blank Spike Lab ID: 1349608
Date Analyzed: 09/01/2016 12:23

Spike Duplicate ID: LCSD for HBN 1168490 [VXX29476]
Spike Duplicate Lab ID: 1349609
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007, 1168490022

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1410	113	1250	1330	107	(75-125)	5.40	(< 20)
Ethylbenzene	1250	1340	107	1250	1260	101	(75-125)	6.00	(< 20)
o-Xylene	1250	1340	107	1250	1260	100	(75-125)	6.50	(< 20)
P & M -Xylene	2500	2730	109	2500	2550	102	(80-125)	6.70	(< 20)
Toluene	1250	1310	105	1250	1220	98	(70-125)	6.70	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	99.1	99	1250	97.7	98	(72-119)	1.40	

Batch Information

Analytical Batch: **VFC13271**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29476**
Prep Method: **SW5035A**
Prep Date/Time: **09/01/2016 00:30**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1168490005
MS Sample ID: 1349612 MS
MSD Sample ID: 1349613 MSD

Analysis Date: 09/01/2016 21:04
Analysis Date: 09/01/2016 21:22
Analysis Date: 09/01/2016 21:41
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007, 1168490022

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	10.9U	1613	1786	111	1613	1712	106	75-125	4.30	(< 20)
Ethylbenzene	21.9U	1613	1650	102	1613	1601	99	75-125	2.80	(< 20)
o-Xylene	17.5J	1613	1601	99	1613	1552	95	75-125	3.40	(< 20)
P & M -Xylene	43.8U	3227	3276	102	3227	3165	98	80-125	3.30	(< 20)
Toluene	21.9U	1613	1663	103	1613	1601	99	70-125	4.00	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1613	1539	96	1613	1539	95	72-119	0.50	

Batch Information

Analytical Batch: VFC13271
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/1/2016 9:22:00PM

Prep Batch: VXX29476
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/1/2016 12:30:00AM
Prep Initial Wt./Vol.: 47.76g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1742670 [VXX/29500]
Blank Lab ID: 1350002

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490023, 1168490024, 1168490025, 1168490026, 1168490027

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	109	50-150		%

Batch Information

Analytical Batch: VFC13277
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/5/2016 11:54:00PM

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 9/5/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [VXX29500]
Blank Spike Lab ID: 1350005
Date Analyzed: 09/05/2016 23:16

Spike Duplicate ID: LCSD for HBN 1168490 [VXX29500]
Spike Duplicate Lab ID: 1350006
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024, 1168490025, 1168490026, 1168490027

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.970	97	1.00	0.979	98	(60-120)	1.00	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	114	114	0.0500	115	115	(50-150)	0.44	

Batch Information

Analytical Batch: **VFC13277**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29500**
Prep Method: **SW5030B**
Prep Date/Time: **09/05/2016 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1742670 [VXX/29500]
Blank Lab ID: 1350002

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490023, 1168490024, 1168490025, 1168490026, 1168490027

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene (surr)	97.8	77-115		%

Batch Information

Analytical Batch: VFC13277
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/5/2016 11:54:00PM

Prep Batch: VXX29500
Prep Method: SW5030B
Prep Date/Time: 9/5/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [VXX29500]
Blank Spike Lab ID: 1350003
Date Analyzed: 09/05/2016 22:58

Spike Duplicate ID: LCSD for HBN 1168490 [VXX29500]
Spike Duplicate Lab ID: 1350004
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024, 1168490025, 1168490026, 1168490027

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	107	107	100	113	113	(80-120)	5.50	(< 20)
Ethylbenzene	100	103	103	100	109	109	(75-125)	5.30	(< 20)
o-Xylene	100	105	105	100	109	109	(80-120)	3.10	(< 20)
P & M -Xylene	200	210	105	200	219	110	(75-130)	4.30	(< 20)
Toluene	100	99.7	100	100	106	106	(75-120)	6.50	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	50	95.8	96	50	98.8	99	(77-115)	3.10	

Batch Information

Analytical Batch: **VFC13277**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29500**
Prep Method: **SW5030B**
Prep Date/Time: **09/05/2016 06:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1742437 [XXX/36180]
Blank Lab ID: 1348979

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490023, 1168490024, 1168490025, 1168490026

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0158J	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl (surr)	90.7	53-106		%
Terphenyl-d14 (surr)	91.8	58-132		%

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BRV
Analytical Date/Time: 9/15/2016 4:16:00PM

Prep Batch: XXX36180
Prep Method: SW3520C
Prep Date/Time: 8/31/2016 9:05:39AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36180]
Blank Spike Lab ID: 1348980
Date Analyzed: 09/15/2016 16:37

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36180]
Spike Duplicate Lab ID: 1348981
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024, 1168490025, 1168490026

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.75	88	2	1.79	90	(41-115)	2.50	(< 20)
2-Methylnaphthalene	2	1.82	91	2	1.82	91	(39-114)	0.14	(< 20)
Acenaphthene	2	2.11	106	2	2.11	106	(48-114)	0.12	(< 20)
Acenaphthylene	2	1.81	90	2	1.80	90	(35-121)	0.51	(< 20)
Anthracene	2	1.90	95	2	1.89	95	(53-119)	0.19	(< 20)
Benzo(a)Anthracene	2	1.84	92	2	1.80	90	(59-120)	2.30	(< 20)
Benzo[a]pyrene	2	2.15	108	2	2.07	103	(53-120)	4.20	(< 20)
Benzo[b]Fluoranthene	2	2.01	101	2	1.98	99	(53-126)	1.60	(< 20)
Benzo[g,h,i]perylene	2	2.23	111	2	2.15	108	(44-128)	3.40	(< 20)
Benzo[k]fluoranthene	2	2.07	104	2	2.00	100	(54-125)	3.50	(< 20)
Chrysene	2	1.94	97	2	1.88	94	(57-120)	3.30	(< 20)
Dibenzo[a,h]anthracene	2	2.21	110	2	2.15	107	(44-131)	2.80	(< 20)
Fluoranthene	2	1.77	88	2	1.72	86	(58-120)	2.90	(< 20)
Fluorene	2	1.88	94	2	1.92	96	(50-118)	2.50	(< 20)
Indeno[1,2,3-c,d] pyrene	2	2.23	111	2	2.16	108	(48-130)	3.40	(< 20)
Naphthalene	2	1.71	85	2	1.69	85	(43-114)	0.86	(< 20)
Phenanthrene	2	1.89	94	2	1.89	95	(53-115)	0.24	(< 20)
Pyrene	2	1.82	91	2	1.78	89	(53-121)	2.60	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	2	91.8	92	2	90.7	91	(53-106)	1.30	
Terphenyl-d14 (surr)	2	95.9	96	2	95.8	96	(58-132)	0.07	

Batch Information

Analytical Batch: **XMS9620**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BRV**

Prep Batch: **XXX36180**
Prep Method: **SW3520C**
Prep Date/Time: **08/31/2016 09:05**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

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Matrix Spike Summary

Original Sample ID: 1165063007
MS Sample ID: 1348982 MS
MSD Sample ID: 1348983 MSD

Analysis Date: 09/15/2016 19:23
Analysis Date: 09/15/2016 19:44
Analysis Date: 09/15/2016 20:04
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024, 1168490025, 1168490026

Results by **8270D SIM LV (PAH)**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0245U	2.03	1.61	79	2.02	1.74	86	41-115	8.00	(< 20)
2-Methylnaphthalene	0.0245U	2.03	1.65	81	2.02	1.80	89	39-114	8.70	(< 20)
Acenaphthene	0.0245U	2.03	1.97	97	2.02	2.08	103	48-114	5.10	(< 20)
Acenaphthylene	0.0245U	2.03	1.64	81	2.02	1.74	87	35-121	6.40	(< 20)
Anthracene	0.0245U	2.03	1.88	92	2.02	1.93	96	53-119	2.70	(< 20)
Benzo(a)Anthracene	0.0245U	2.03	1.79	88	2.02	1.79	89	59-120	0.28	(< 20)
Benzo[a]pyrene	0.00980U	2.03	2.03	100	2.02	2.11	104	53-120	3.60	(< 20)
Benzo[b]Fluoranthene	0.0245U	2.03	1.93	95	2.02	1.97	98	53-126	2.00	(< 20)
Benzo[g,h,i]perylene	0.0245U	2.03	2.1	103	2.02	2.13	106	44-128	1.80	(< 20)
Benzo[k]fluoranthene	0.0245U	2.03	1.91	94	2.02	1.84	92	54-125	3.60	(< 20)
Chrysene	0.0245U	2.03	1.83	90	2.02	1.92	95	57-120	5.00	(< 20)
Dibenzo[a,h]anthracene	0.00980U	2.03	2.13	105	2.02	2.15	107	44-131	0.89	(< 20)
Fluoranthene	0.0245U	2.03	1.61	79	2.02	1.67	83	58-120	3.40	(< 20)
Fluorene	0.0245U	2.03	1.8	89	2.02	1.92	95	50-118	6.30	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0245U	2.03	2.1	103	2.02	2.13	106	48-130	1.80	(< 20)
Naphthalene	0.0490U	2.03	1.58	78	2.02	1.67	83	43-114	5.90	(< 20)
Phenanthrene	0.0245U	2.03	1.78	88	2.02	1.89	94	53-115	5.80	(< 20)
Pyrene	0.0245U	2.03	1.66	82	2.02	1.72	85	53-121	3.50	(< 20)
Surrogates										
2-Fluorobiphenyl (surr)		2.03	1.73	85	2.02	1.90	94	53-106	9.50	
Terphenyl-d14 (surr)		2.03	1.75	86	2.02	1.92	95	58-132	9.60	

Batch Information

Analytical Batch: XMS9620
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BRV
Analytical Date/Time: 9/15/2016 7:44:00PM

Prep Batch: XXX36180
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 8/31/2016 9:05:39AM
Prep Initial Wt./Vol.: 246.00mL
Prep Extract Vol: 1.00mL

Print Date: 10/03/2016 11:29:45AM

Method Blank

Blank ID: MB for HBN 1742601 [XXX/36208]
Blank Lab ID: 1349728

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490002, 1168490003, 1168490005, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490014, 1168490015, 1168490016, 1168490017, 1168490018, 1168490020, 1168490021

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	84.8	60-120		%

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: NRO
Analytical Date/Time: 9/6/2016 9:21:00PM

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 9/2/2016 2:12:24PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36208]
Blank Spike Lab ID: 1349729
Date Analyzed: 09/06/2016 21:31

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36208]
Spike Duplicate Lab ID: 1349730
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490002, 1168490003, 1168490005, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490014, 1168490015, 1168490016, 1168490017, 1168490018, 1168490020, 1168490021

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	154	93	167	146	88	(75-125)	5.60	(< 20)
Surrogates									
5a Androstane (surr)	3.33	96.3	96	3.33	89.6	90	(60-120)	7.20	

Batch Information

Analytical Batch: **XFC12799**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **NRO**

Prep Batch: **XXX36208**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2016 14:12**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742601 [XXX/36208]
Blank Lab ID: 1349728

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490002, 1168490003, 1168490005, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490014, 1168490015, 1168490016, 1168490017, 1168490018, 1168490020, 1168490021

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	101	60-120		%

Batch Information

Analytical Batch: XFC12799
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: NRO
Analytical Date/Time: 9/6/2016 9:21:00PM

Prep Batch: XXX36208
Prep Method: SW3550C
Prep Date/Time: 9/2/2016 2:12:24PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36208]
Blank Spike Lab ID: 1349729
Date Analyzed: 09/06/2016 21:31

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36208]
Spike Duplicate Lab ID: 1349730
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490002, 1168490003, 1168490005, 1168490008, 1168490009, 1168490010, 1168490011, 1168490012, 1168490014, 1168490015, 1168490016, 1168490017, 1168490018, 1168490020, 1168490021

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	154	92	167	143	86	(60-120)	7.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	98.5	99	3.33	97.9	98	(60-120)	0.60	

Batch Information

Analytical Batch: **XFC12799**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **NRO**

Prep Batch: **XXX36208**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2016 14:12**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742623 [XXX/36210]
Blank Lab ID: 1349821

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490005, 1168490006, 1168490007

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	92.9	46-115		%
Terphenyl-d14 (surr)	92.4	58-133		%

Batch Information

Analytical Batch: XMS9593
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: S.G
Analytical Date/Time: 9/7/2016 12:57:00PM

Prep Batch: XXX36210
Prep Method: SW3550C
Prep Date/Time: 9/2/2016 5:13:50PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36210]
Blank Spike Lab ID: 1349822
Date Analyzed: 09/07/2016 13:42

Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007

Results by **8270D SIM (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	20.0	90	(43-111)
2-Methylnaphthalene	22.2	19.2	87	(39-114)
Acenaphthene	22.2	23.7	106	(44-111)
Acenaphthylene	22.2	20.7	93	(39-116)
Anthracene	22.2	22.6	101	(50-114)
Benzo(a)Anthracene	22.2	18.2	82	(54-122)
Benzo[a]pyrene	22.2	21.2	95	(50-125)
Benzo[b]Fluoranthene	22.2	19.2	86	(53-128)
Benzo[g,h,i]perylene	22.2	20.9	94	(49-127)
Benzo[k]fluoranthene	22.2	21.5	97	(56-123)
Chrysene	22.2	23.3	105	(57-118)
Dibenzo[a,h]anthracene	22.2	20.6	93	(50-129)
Fluoranthene	22.2	20.1	90	(55-119)
Fluorene	22.2	22.0	99	(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	20.7	93	(49-130)
Naphthalene	22.2	18.1	82	(38-111)
Phenanthrene	22.2	21.1	95	(49-113)
Pyrene	22.2	22.2	100	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	22.2	93.6	94	(46-115)
Terphenyl-d14 (surr)	22.2	90.5	91	(58-133)

Batch Information

Analytical Batch: **XMS9593**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **S.G**

Prep Batch: **XXX36210**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2016 17:13**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/03/2016 11:29:52AM

Matrix Spike Summary

Original Sample ID: 1165040005
MS Sample ID: 1349823 MS
MSD Sample ID: 1349824 MSD

Analysis Date: 09/29/2016 9:56
Analysis Date: 09/29/2016 10:17
Analysis Date: 09/29/2016 10:38
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007

Results by **8270D SIM (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	24.5J	34.1	58.0J	170	*	34.1	57.3J	168	*	43-111	1.20	(< 20)
2-Methylnaphthalene	27.0J	34.1	59.6J	175	*	34.1	59.7J	175	*	39-114	0.06	(< 20)
Acenaphthene	38.3U	34.1	35.6J	105		34.1	35.8J	105		44-111	0.29	(< 20)
Acenaphthylene	38.3U	34.1	40.6J	119	*	34.1	38.0J	111		39-116	6.70	(< 20)
Anthracene	38.3U	34.1	54.3J	159	*	34.1	52.6J	155	*	50-114	3.30	(< 20)
Benzo(a)Anthracene	38.3U	34.1	28.7J	84		34.1	32.4J	95		54-122	12.00	(< 20)
Benzo[a]pyrene	38.3U	34.1	38.3U	0	*	34.1	38.3U	0	*	50-125	0.00	(< 20)
Benzo[b]Fluoranthene	38.3U	34.1	41.8J	122		34.1	41.5J	122		53-128	0.72	(< 20)
Benzo[g,h,i]perylene	38.3U	34.1	38.3U	0	*	34.1	24.1J	71		49-127	0.00	(< 20)
Benzo[k]fluoranthene	38.3U	34.1	27.3J	80		34.1	25.9J	76		56-123	4.80	(< 20)
Chrysene	38.3U	34.1	37.7J	111		34.1	38.1J	112		57-118	1.10	(< 20)
Dibenzo[a,h]anthracene	38.3U	34.1	38.3U	0	*	34.1	38.3U	0	*	50-129	0.00	(< 20)
Fluoranthene	38.3U	34.1	48.3J	141	*	34.1	48.6J	143	*	55-119	0.69	(< 20)
Fluorene	38.3U	34.1	33.3J	98		34.1	33.2J	98		47-114	0.58	(< 20)
Indeno[1,2,3-c,d] pyrene	38.3U	34.1	38.3U	0	*	34.1	38.3U	0	*	49-130	0.00	(< 20)
Naphthalene	38.3U	34.1	46.9J	138	*	34.1	45.1J	132	*	38-111	4.10	(< 20)
Phenanthrene	38.3U	34.1	51.2J	150	*	34.1	51.2J	150	*	49-113	0.07	(< 20)
Pyrene	38.3U	34.1	48.5J	142	*	34.1	51.5J	151	*	55-117	6.10	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		34.1	32.1	94		34.1	30.2	89		46-115	5.60	
Terphenyl-d14 (surr)		34.1	48.9	144	*	34.1	47.4	139	*	58-133	3.30	

Batch Information

Analytical Batch: XMS9647
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: S.G
Analytical Date/Time: 9/29/2016 10:17:00AM

Prep Batch: XXX36210
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/2/2016 5:13:50PM
Prep Initial Wt./Vol.: 22.63g
Prep Extract Vol: 5.00mL

Print Date: 10/03/2016 11:29:53AM

Method Blank

Blank ID: MB for HBN 1742627 [XXX/36211]
Blank Lab ID: 1349827

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490001, 1168490004, 1168490006, 1168490007, 1168490013, 1168490019

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	78.4	60-120		%

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: NRO
Analytical Date/Time: 9/8/2016 10:26:00AM

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 9/2/2016 8:32:35PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36211]
Blank Spike Lab ID: 1349828
Date Analyzed: 09/08/2016 10:36

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36211]
Spike Duplicate Lab ID: 1349829
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490001, 1168490004, 1168490006, 1168490007, 1168490013, 1168490019

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	143	86	167	137	82	(75-125)	4.30	(< 20)
Surrogates									
5a Androstane (surr)	3.33	83.9	84	3.33	78.8	79	(60-120)	6.30	

Batch Information

Analytical Batch: **XFC12801**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **NRO**

Prep Batch: **XXX36211**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2016 20:32**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742627 [XXX/36211]
Blank Lab ID: 1349827

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490001, 1168490004, 1168490006, 1168490007, 1168490013, 1168490019

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	81.1	60-120		%

Batch Information

Analytical Batch: XFC12801
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: NRO
Analytical Date/Time: 9/8/2016 10:26:00AM

Prep Batch: XXX36211
Prep Method: SW3550C
Prep Date/Time: 9/2/2016 8:32:35PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36211]
Blank Spike Lab ID: 1349828
Date Analyzed: 09/08/2016 10:36

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36211]
Spike Duplicate Lab ID: 1349829
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490001, 1168490004, 1168490006, 1168490007, 1168490013, 1168490019

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	138	83	167	128	77	(60-120)	7.70	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	83.7	84	3.33	77.7	78	(60-120)	7.40	

Batch Information

Analytical Batch: **XFC12801**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **NRO**

Prep Batch: **XXX36211**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2016 20:32**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742659 [XXX/36216]
Blank Lab ID: 1349945

Matrix: Soil/Solid (dry weight)

QC for Samples:
1168490005, 1168490006, 1168490007

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	15.0	ug/Kg
Aroclor-1221	100U	200	62.0	ug/Kg
Aroclor-1232	25.0U	50.0	15.0	ug/Kg
Aroclor-1242	25.0U	50.0	15.0	ug/Kg
Aroclor-1248	25.0U	50.0	15.0	ug/Kg
Aroclor-1254	25.0U	50.0	15.0	ug/Kg
Aroclor-1260	25.0U	50.0	15.0	ug/Kg
Surrogates				
Decachlorobiphenyl (surr)	81	60-125		%

Batch Information

Analytical Batch: XGC9507
Analytical Method: SW8082A
Instrument: Agilent 7890B GC ECD SW F
Analyst: AEE
Analytical Date/Time: 9/8/2016 7:55:00PM

Prep Batch: XXX36216
Prep Method: SW3550C
Prep Date/Time: 9/6/2016 8:28:51AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36216]
Blank Spike Lab ID: 1349946
Date Analyzed: 09/08/2016 20:05

Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	138	62	(47-134)
Aroclor-1260	222	180	81	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	81	81	(60-125)

Batch Information

Analytical Batch: **XGC9507**
Analytical Method: **SW8082A**
Instrument: **Agilent 7890B GC ECD SW F**
Analyst: **AEE**

Prep Batch: **XXX36216**
Prep Method: **SW3550C**
Prep Date/Time: **09/06/2016 08:28**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1165000013
MS Sample ID: 1349976 MS
MSD Sample ID: 1349977 MSD

Analysis Date: 09/08/2016 23:11
Analysis Date: 09/08/2016 23:21
Analysis Date: 09/08/2016 23:41
Matrix: Soil/Solid (dry weight)

QC for Samples: 1168490005, 1168490006, 1168490007

Results by **SW8082A**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	64.0U	568	478	84	568	398	70	47-134	18.10	(< 30)
Aroclor-1260	64.0U	568	391	69	568	365	64	53-140	7.43	(< 30)
Surrogates										
Decachlorobiphenyl (surr)		568	427	75	568	404	71	60-125	5.40	

Batch Information

Analytical Batch: XGC9507
Analytical Method: SW8082A
Instrument: Agilent 7890B GC ECD SW F
Analyst: AEE
Analytical Date/Time: 9/8/2016 11:21:00PM

Prep Batch: XXX36216
Prep Method: Sonication Extraction Soil SW8080 PCB
Prep Date/Time: 9/6/2016 8:28:51AM
Prep Initial Wt./Vol.: 22.63g
Prep Extract Vol: 5.00mL

Print Date: 10/03/2016 11:30:03AM

Method Blank

Blank ID: MB for HBN 1742721 [XXX/36226]
Blank Lab ID: 1350228

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490023, 1168490024

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.312J	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	90.3	60-120		%

Batch Information

Analytical Batch: XFC12795
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 9/8/2016 3:38:00PM

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 9/7/2016 8:55:31AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36226]
Blank Spike Lab ID: 1350229
Date Analyzed: 09/08/2016 03:13

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36226]
Spike Duplicate Lab ID: 1350230
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	21.6	108	20	21.2	106	(75-125)	1.70	(< 20)
Surrogates									
5a Androstane (surr)	0.4	94.4	94	0.4	95.7	96	(60-120)	1.40	

Batch Information

Analytical Batch: **XFC12796**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36226**
Prep Method: **SW3520C**
Prep Date/Time: **09/07/2016 08:55**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742721 [XXX/36226]
Blank Lab ID: 1350228

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490023, 1168490024

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.223J	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	98.3	60-120		%

Batch Information

Analytical Batch: XFC12795
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 9/8/2016 3:38:00PM

Prep Batch: XXX36226
Prep Method: SW3520C
Prep Date/Time: 9/7/2016 8:55:31AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36226]
Blank Spike Lab ID: 1350229
Date Analyzed: 09/08/2016 03:13

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36226]
Spike Duplicate Lab ID: 1350230
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490023, 1168490024

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	20.9	104	20	20.3	102	(60-120)	2.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	105	105	0.4	108	108	(60-120)	2.90	

Batch Information

Analytical Batch: **XFC12796**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36226**
Prep Method: **SW3520C**
Prep Date/Time: **09/07/2016 08:55**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742734 [XXX/36228]
Blank Lab ID: 1350278

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490025, 1168490026

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	97.6	60-120		%

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 9/10/2016 4:00:00AM

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 9/7/2016 10:43:51AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36228]
Blank Spike Lab ID: 1350279
Date Analyzed: 09/08/2016 00:05

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36228]
Spike Duplicate Lab ID: 1350280
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490025, 1168490026

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	16.5	83	20	18.8	94	(75-125)	13.00	(< 20)
Surrogates									
5a Androstane (surr)	0.4	92	92	0.4	95.2	95	(60-120)	3.30	

Batch Information

Analytical Batch: **XFC12798**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36228**
Prep Method: **SW3520C**
Prep Date/Time: **09/07/2016 10:43**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1742734 [XXX/36228]
Blank Lab ID: 1350278

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1168490025, 1168490026

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	103	60-120		%

Batch Information

Analytical Batch: XFC12815
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 9/10/2016 4:00:00AM

Prep Batch: XXX36228
Prep Method: SW3520C
Prep Date/Time: 9/7/2016 10:43:51AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1168490 [XXX36228]
Blank Spike Lab ID: 1350279
Date Analyzed: 09/08/2016 00:05

Spike Duplicate ID: LCSD for HBN 1168490 [XXX36228]
Spike Duplicate Lab ID: 1350280
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1168490025, 1168490026

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	17.5	88	20	18.3	92	(60-120)	4.30	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	94.7	95	0.4	98.2	98	(60-120)	3.60	

Batch Information

Analytical Batch: **XFC12798**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36228**
Prep Method: **SW3520C**
Prep Date/Time: **09/07/2016 10:43**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Page 1 of 3

SECTION 1

CLIENT: Ahtna Engineering

CONTACT: Andrew Weller — PHONE #: 907-374-4750

PROJECT NAME: Tanana Community Hall — PROJECT/PWSID/PERMIT #: 20266.019

REPORTS TO: Andrew Weller, Leslie Davis — E-MAIL: aweller@ahtna.net, ldavis@ahtna.net

INVOICE TO: Andrew Weller — QUOTE #: 339629 — P.O. #: 20266.019

SECTION 2 / SECTION 3

RESERVED FOR LAB USE	SAMPLE IDENTIFICATION	DATE MM/DD/YY	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE: Comp Grab MI (Multi-incremental)	AK102/103 DRO/RRO	BTEX 8021B	PAH 8270D SIM	PCB 8082A	RCRA Metals EPA 6000/7000						REMARKS/ LOC ID
(1) A	16-TAL-TP-01-1.0-1.3	8.23.16	1300	SO	1	G	X										
(2) A	16-TAL-TP-01-2.4-2.5	8.23.16	1305	SO	1	G	X										
(3) A	16-TAL-TP-01-2.5-2.6	8.23.16	1310	SO	1	G	X										
(4) A	16-TAL-TP-02-1.1-1.3	8.23.16	1315	SO	1	G	X										
(5) A-B	16-TAL-TP-02-2.2-2.5	8.23.16	1320	SO	2	G	X	X	X	X	X						
(6) A-B	16-TAL-TP-03-1.5-1.8	8.23.16	1325	SO	2	G	X	X	X	X	X						
(7) A-B	16-TAL-TP-20-1.5-1.8	8.23.16	1330	SO	2	G	X	X	X	X	X						
(8) A	16-TAL-TP-03-2.8-3.0	8.23.16	1335	SO	1	G	X										
(9) A	16-TAL-TP-04-1.0-1.2	8.23.16	1340	SO	1	G	X										
(10) A	16-TAL-TP-05-1.0-1.2	8.23.16	1345	SO	1	G	X										

SECTION 5

RELINQUISHED BY	DATE	TIME	RECEIVED BY
(1) [signature]	8.26.16	1300	[signature] 8/26/16 1330
(2) [signature]	8/26/16	1800	
(3)			
(4)	8/27/16	1030	RECEIVED FOR LABORATORY BY: [signature]

8/27/16

SECTION 4 DOD Project? NO

COC ID:

Cooler ID:

DATA DELIVERABLE REQUIREMENTS: Level II

REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS: Standard TAT

TEMP BLANK °C: 3.1

OR AMBIENT [ ]

(See attached Sample Receipt Form)

3.9 Z41

CHAIN OF CUSTODY SEAL: (CIRCLE) INTACT BROKEN ABSENT

ND

(See attached Sample Receipt Form)

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IFB

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SECTION 1

CLIENT: Ahtna Engineering

CONTACT: Andrew Weller | PHONE #: 907-374-4750

PROJECT NAME: Tanana Community Hall | PROJECT/ PWSID/ PERMIT #: 20266.019

REPORTS TO: Andrew Weller, Leslie Davis | E-MAIL: aweller@ahtna.net, ldavis@ahtna.net

INVOICE TO: Andrew Weller | QUOTE #: 339629 | P.O. #: 20266.019

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Page 2 of 3

SECTION 2

RESERVED FOR LAB USE	SAMPLE IDENTIFICATION	DATE MM/DD/YY	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE: Comp Grab MI (Multi-incremental)	PRESERVATIVE: DRO/RRO AK102/103									REMARKS/ LOC ID
(11) A	16-TAL-TP-06-1.3-1.5	8.23.16	1350	SO	1	G	X									
(12) A	16-TAL-TP-07-1.4-1.5	8.23.16	1355	SO	1	G	X									
(13) A	16-TAL-TP-08-1.2-1.3	8.23.16	1400	SO	1	G	X									
(14) A	16-TAL-TP-09-2.1-2.3	8.23.16	1405	SO	1	G	X									
(15) A	16-TAL-TP-10-1.0-1.2	8.23.16	1410	SO	1	G	X									
(16) A	16-TAL-TP-11-1.5-1.7	8.23.16	1415	SO	1	G	X									
(17) A	16-TAL-SB-01-18.3-18.7	8.24.16	1640	SO	1	G	X									
(18) A	16-TAL-SB-02-19.0-19.6	8.24.16	1735	SO	1	G	X									
(19) A	16-TAL-SB-03-1.6-1.8	8.24.16	1800	SO	1	G	X									
(20) A	16-TAL-SB-03-5.5-6.0	8.24.16	1810	SO	1	G	X									

SECTION 5

	DATE	TIME		
RELINQUISHED BY: (1)	8.26.16	1300	RECEIVED BY:	8/26/16 1330
RELINQUISHED BY:(2)	8/26/16	500	RECEIVED BY:	
RELINQUISHED BY:(3)	DATE	TIME	RECEIVED BY:	
RELINQUISHED BY:(4)	DATE 8/26/16 8/27/16	TIME 1013C	RECEIVED FOR LABORATORY BY:	

SECTION 4

DOD Project? NO

COC ID:

Cooler ID:

DATA DELIVERABLE REQUIREMENTS: Level II

REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS

Standard TAT

TEMP BLANK °C: 5.1 OR AMBIENT [ ]

(See attached Sample Receipt Form)

CHAIN OF CUSTODY SEAL: (CIRCLE) INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

3.9 2.1

1 F 18

SGS

SGS NORTH AMERICA

1168490

Y RECORD

SGS Environmental Services
200 West Potter Road
Anchorage, AK 99518
(907) 562-2343
www.sgs.com/alaska

INSTRUCTIONS: SECTIONS 1-5 MUST BE FILLED OUT. OMISSIONS MAY DELAY THE ONSET OF ANALYSIS.

Page 3 of 3

SECTION 1

CLIENT: Ahtna Engineering

CONTACT: Andrew Weller — PHONE #: 907-374-4750

PROJECT NAME: Tanana Community Hall — PROJECT/ PWSID/ PERMIT #: 20266.019

REPORTS TO: Andrew Weller, Leslie Davis — E-MAIL: aweller@ahtna.net, ldavis@ahtna.net

INVOICE TO: Andrew Weller — QUOTE #: 339629 — P.O. #: 20266.019

SECTION 2

RESERVED FOR LAB USE	SAMPLE IDENTIFICATION	DATE MM/DD/YY	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE: Comp Grab MI (Multi-incremental)	PRESERVATIVE: DRO/RRO AK102/103	BTEX 8021B	DRO/RRO AK102/103	GRO AK101	BTEX 8021B	PAH 8270 SIM	REMARKS/ LOC ID
21 A	16-TAL-SB-20-5.5-6.0	8.24.16	1820	SO	1	G	X						
22 A	TRIPBLANK-01	8.23.16	0800	QC	1	QC		X					TRIP BLANK
23 A-G	16-TAL-WP-01-21.5-25.0	8.25.16	1015	W	7	G			X	X	X	X	
24 A-G	16-TAL-WP-02-21.5-25.0	8.25.16	1100	W	7	G			X	X	X	X	
25 A-G	16-TAL-WP-20-21.5-25.0	8.25.16	1105	W	7	G			X	X	X	X	
26 A-G	16-TAL-WP-03-21.5-25.0	8.25.16	1215	W	7	G			X	X	X	X	
27 A-C	TRIPBLANK-02	8.25.16	0800	W	3	QC				X	X		TRIP BLANK

SECTION 5

	DATE	TIME	
RELINQUISHED BY: (1) Leslie Davis	8.26.16	1300	RECEIVED BY: 8/26/16 1330
RELINQUISHED BY:(2)	8/26/16	1500	RECEIVED BY:
RELINQUISHED BY:(3)			RECEIVED BY:
RELINQUISHED BY:(4)	8/26/16 JP	1030	RECEIVED FOR LABORATORY BY: 8/27/16

SECTION 4

DOD Project? NO

COC ID:

Cooler ID:

DATA DELIVERABLE REQUIREMENTS: Level II

REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS

Standard TAT

TEMP BLANK °C: 5.1

OR AMBIENT [ ]

(See attached Sample Receipt Form)

CHAIN OF CUSTODY SEAL: (CIRCLE) INTACT BROKEN (ABSENT)

(See attached Sample Receipt Form)

http://www.sgs.com/terms-and-conditions

F101_eCOC_Revised_2014-12-10

SGS

1168490

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No ~~N/A~~ ~~Yes~~ No N/A	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 5.1 w/Therm. ID: 71 Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note ambient ( ) or chilled ( ). Please check one.	~~Yes~~ No Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery ~~Method: Client (hand carried)~~ Other:____	Tracking/AB# : Or see attached Or N/A	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite Other:____	~~Yes~~ No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	~~Yes~~ No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No ~~N/A~~ Yes No ~~N/A~~	

Additional notes (if applicable):

Profile #: 334422

Note to Client: any "no" circled above indicates non-compliance with standard procedures and may impact data quality.

SGS

e-SAMPLE RECEIPT FORM

1168490

Review Criteria	Y/N (yes/no)	Exceptions Noted below
		☐ exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Y	1F-1B
COC accompanied samples?	Y	
☐ **exemption permitted if chilled & collected <8hrs ago or chlling not required (i.e., waste, oil)		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Y	Cooler ID: 1 @ 3.9 °C Therm ID: 241
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
*If >6°C, were samples collected <8 hours ago?	Y	
If <0°C, were sample containers ice free?	Y	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
		Note: Refer to form F-083 "Sample Guide" for hold times.
Were samples received within hold time?	Y	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Y	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	Y	
		☐ ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Y	
IF APPLICABLE		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Y	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Y	
Were all soil VOAs field extracted with MeOH+BFB?	Y	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1168490001-A	No Preservative Required	OK	1168490025-D	HCL to pH < 2	OK
1168490002-A	No Preservative Required	OK	1168490025-E	HCL to pH < 2	OK
1168490003-A	No Preservative Required	OK	1168490025-F	No Preservative Required	OK
1168490004-A	No Preservative Required	OK	1168490025-G	No Preservative Required	OK
1168490005-A	No Preservative Required	OK	1168490026-A	HCL to pH < 2	OK
1168490005-B	Methanol field pres. 4 C	OK	1168490026-B	HCL to pH < 2	OK
1168490006-A	No Preservative Required	OK	1168490026-C	HCL to pH < 2	OK
1168490006-B	Methanol field pres. 4 C	OK	1168490026-D	HCL to pH < 2	OK
1168490007-A	No Preservative Required	OK	1168490026-E	HCL to pH < 2	OK
1168490007-B	Methanol field pres. 4 C	OK	1168490026-F	No Preservative Required	OK
1168490008-A	No Preservative Required	OK	1168490026-G	No Preservative Required	OK
1168490009-A	No Preservative Required	OK	1168490027-A	HCL to pH < 2	OK
1168490010-A	No Preservative Required	OK	1168490027-B	HCL to pH < 2	OK
1168490011-A	No Preservative Required	OK	1168490027-C	HCL to pH < 2	OK
1168490012-A	No Preservative Required	OK			
1168490013-A	No Preservative Required	OK			
1168490014-A	No Preservative Required	OK			
1168490015-A	No Preservative Required	OK			
1168490016-A	No Preservative Required	OK			
1168490017-A	No Preservative Required	OK			
1168490018-A	No Preservative Required	OK			
1168490019-A	No Preservative Required	OK			
1168490020-A	No Preservative Required	OK			
1168490021-A	No Preservative Required	OK			
1168490022-A	Methanol field pres. 4 C	OK			
1168490023-A	HCL to pH < 2	OK			
1168490023-B	HCL to pH < 2	OK			
1168490023-C	HCL to pH < 2	OK			
1168490023-D	HCL to pH < 2	OK			
1168490023-E	HCL to pH < 2	OK			
1168490023-F	No Preservative Required	OK			
1168490023-G	No Preservative Required	OK			
1168490024-A	HCL to pH < 2	OK			
1168490024-B	HCL to pH < 2	OK			
1168490024-C	HCL to pH < 2	OK			
1168490024-D	HCL to pH < 2	OK			
1168490024-E	HCL to pH < 2	OK			
1168490024-F	No Preservative Required	OK			
1168490024-G	No Preservative Required	OK			
1168490025-A	HCL to pH < 2	OK			
1168490025-B	HCL to pH < 2	OK			
1168490025-C	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

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APPENDIX E

CONCEPTUAL SITE MODEL

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HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Tanana Community Hall Site, Tanana Alaska
Hazard ID 26250, ADEC File No. 780.57.004

Completed By: Leslie Davis of Ahtna Engineering
Date Completed: November 2016

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Current & Future Receptors: Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ Surface Soil (0-2 ft bgs)	☑ Direct release to surface soil — check soil	☑ soil	☑ Incidental Soil Ingestion			C/F	C/F	F		
	☑ Migration to subsurface — check soil		☑ Dermal Absorption of Contaminants from Soil			C/F	C/F	F		
	☑ Migration to groundwater — check groundwater		☑ Inhalation of Fugitive Dust			C/F	C/F	F		
	☑ Volatilization — check air									
	☑ Runoff or erosion — check surface water									
	☑ Uptake by plants or animals — check biota									
	☐ Other (list):									
☑ Subsurface Soil (2-15 ft bgs)	☑ Direct release to subsurface soil — check soil	☑ groundwater	☑ Ingestion of Groundwater			F		F		
	☑ Migration to groundwater — check groundwater		☐ Dermal Absorption of Contaminants in Groundwater							
	☑ Volatilization — check air		☐ Inhalation of Volatile Compounds in Tap Water							
	☑ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Ground-water	☐ Direct release to groundwater — check groundwater	☑ air	☑ Inhalation of Outdoor Air			C/F	C/F	F		
	☐ Volatilization — check air		☑ Inhalation of Indoor Air			C/F	C/F			
	☐ Flow to surface water body — check surface water		☐ Inhalation of Fugitive Dust							
	☐ Flow to sediment — check sediment									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water — check surface water	☑ surface water	☐ Ingestion of Surface Water							
	☐ Volatilization — check air		☑ Dermal Absorption of Contaminants in Surface Water			C/F	C/F	F		
	☐ Sedimentation — check sediment		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment — check sediment	☐ sediment	☐ Direct Contact with Sediment							
	☐ Resuspension, runoff, or erosion — check surface water									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
		☑ biota	☑ Ingestion of Wild or Farmed Foods			F		F		

Revised, 10/01/2010

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Print Form

Human Health Conceptual Site Model Scoping Form

Site Name: Tanana Community Hall

File Number: 780.57.004

Completed by: Leslie Davis of Ahtna Engineering

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☒ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☒ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☒ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☒ Groundwater
- ☒ Surface water
- ☒ Biota
- ☐ Other: groundwater has possible minimal impact from contamination with DRO nearly 1/10th of GWCL.

Receptors *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☒ Recreational user
- ☒ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

Soil samples collected show DRO, RRO, and PAH concentrations above ADEC SCLs from 0 - 2 ft bgs

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

PAHs listed in Appendix B are present from 0 to 2 ft bgs.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Groundwater exposure pathways are considered potentially complete based on a DRO detection (0.190 mg/L) at more than 1/10th the GWCL.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Surface sheen during rain event was observed.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Tanana Community Hall is located approximately 30 ft to the east of the Block 11, Lot 7 boundary. Contamination was visually noted in the 2015 PACP (S&W, 2015) at Test Pit 4, approx. 15 ft from the building.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Surface sheen observed during rain event.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

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